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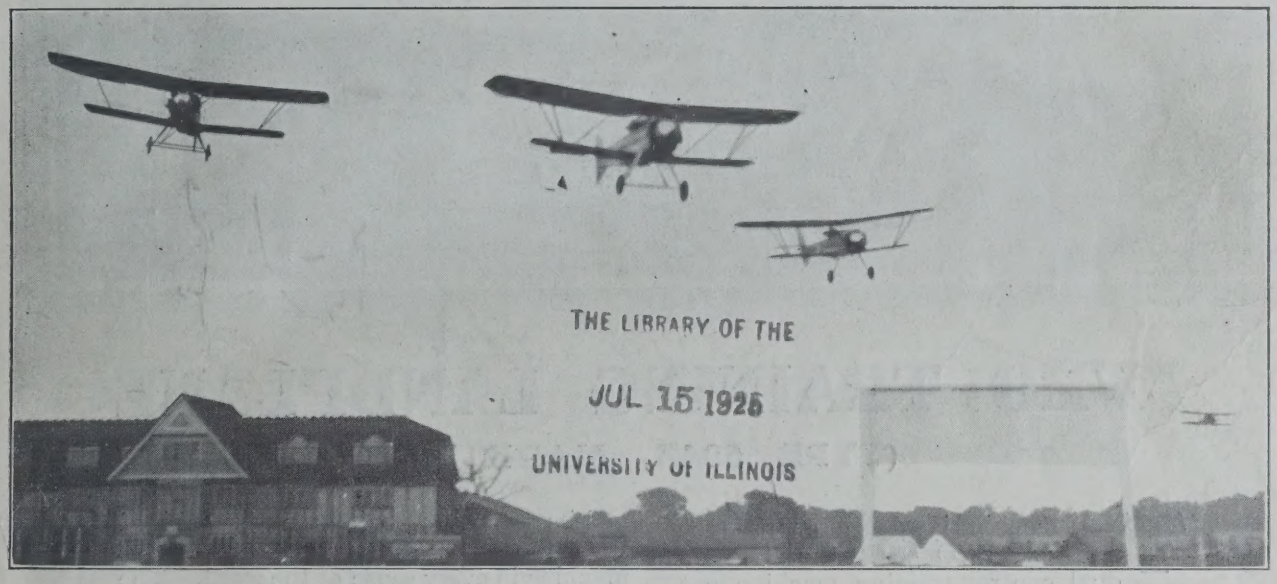
THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. Grey

Vol. XXIX. No. 1. SIXPENCE WEEKLY. *Registered at the G.P.O. as a Newspaper.*

AT THE R.A.F. DISPLAY.


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THE AEROPLANE

VOL. XXIX. No. 1.

Incorporating

Aeronautical Engineering

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ON THE R.A.F. DISPLAY.

Why did somebody take it into his head to call the R.A.F. Pageant the R.A.F. Display? Why did the People Who Matter sanction the alteration? And why was any alteration necessary anyhow?

Somehow the word Display is always coupled socially with the word vulgar or ostentatious, or commercially with the word window. Certainly there was nothing vulgar or ostentatious about the performance on Saturday last, the 27th of June. Still less was there any suspicion of window-dressing.

On the contrary, everything was done decently and in order, with perfect Service precision. And so far from there being any attempt to display all the goods of the Air Force in the front window, good as the show was it could only have given an intelligent if ignorant observer an impression of the excellent flying and field organisation of the R.A.F. He could have gained no idea of the real power that lies behind what he saw, nor of the solid foundations which the Air Staff has laid down for an Air Force which is capable of expanding to many times its present size on the outbreak of war.

Still, those of our future enemies who were present—and there seemed to be quantities of them, both East European and Asiatic—must have been impressed by the machine-like regularity with which everything was done, and by the uncanny accuracy of the formation flying, whether by big aeroplanes or little ones, and by the smartness and keenness of officers and men alike. Neither the Tournament at Olympia nor the Aldershot Tattoo can give any points to the R.A.F. performance, and hitherto they have represented the World's high-water mark in Service shows. No praise can be too high for the General Committee and the Flying Committee and the Aerodrome Organiser and the Secretary and their Chairman, the A.O.C. Inland Area, R.A.F.—Air Commodore Webb-Bowen.

Nevertheless, one still holds in common with some few thousands of others that the affair would be better described as a Pageant or a Tournament than as a Display. It is in fact a Pageant of air strength, or a Tournament of R.A.F. Units rather than a display: even though certain events represent the culmination of the training of the personnel concerned therein.

Presumably the objection to using the word Tournament is that the Hendon show may be confused with that at Olympia. If that be so, the R.A.F. seems to be unduly sensitive about the feelings of other people, for one has never heard that the Navy had any qualms about advertising its Reviews at Spithead, although the Army holds Reviews at Aldershot and elsewhere. And one can find no objection to the word Pageant, which describes the affair better than any other. Besides which the word has become so familiar that the verb "to padge" is practically a part of the English language.

If you please, Messieurs of the Air Ministry, can we not next year have again an R.A.F. Pageant, whether at Hendon or over Salisbury Plain? It would hurt nobody and it would please many. And everyone *called* it the Pageant anyway.

General Criticism.

Before dealing with the performances in detail there seems reason in giving a general criticism of the whole affair.

Naturally the flying was above reproach, whether done by individual star pilots or by formations composed mostly of youngsters who have learned to fly since Peace fell upon us there is no fault to be found. So far as one could discover not one pilot made a mistake, and where anything untoward happened the pilots saved an accident or covered the incident by sheer cool skill, and the only criticisms one has to make are, one hopes, purely constructive. There is no denying that the opening events were dull.

There is nothing to enthuse the populace in an Avro drifting in to land with a dead engine, or with a "stopped prop" or a "lost stick" as the slangy unregenerate would call it. R.A.F. pilots are expected to do that sort of thing. One suggests, or at any rate one passes on the suggestion of a mother who has given two sons to the Air Force, that the Team Relay Race (Avro, Bristol, Snipe—which should by next year be represented by modern equivalents—from different units) should be revived. The crowd always used to grow excited over that event, and the team markings of the machines gave variety to the spectacle as a whole. Also the practice and preparations stirred up enthusiasm at the stations.

The second event, the demonstration of Army Co-operation, in the form of picking up message-bags from the ground by Bristol Fighters, is in itself very interesting, but on Saturday the picking-up posts were placed so far out in the aerodrome that the operations could hardly be seen from the enclosures except with field-glasses. And anyhow it is not sufficiently spectacular for an opening event.

Everybody who is going to Hendon gets there long before 15.00 hours, so the show might well begin with something



ROYALTY AT THE DISPLAY.—The King and Queen watching the Display at Hendon. On the King's left is Sir Hugh Trenchard and on his right is Sir Samuel Hoare. On the extreme left is the Duke of Sutherland. In front of His Majesty is the microphone by means of which he gave a radio order to 25 (Fighter) Squadron.

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"A THOROUGHLY GOOD AEROPLANE."—The Vickers Vanguard (two 650 Rolls-Royce Condors) in the Amusement Park. The quotation is the opinion of numerous R.A.F. pilots.

like the opening chorus of a musical comedy rather than like the housemaid and butler scene of a society play, which is only put in to let the late-comers get to their seats. The Army Co-operation event would go better in the middle of the programme as a kind of antidote to something exciting like the tank-bombing.

Also, from the spectators' point of view it would be better if the picking-up posts were fixed nearer the railings and so that the machines would haves to fly parallel to the whole front of the crowd and not over the heads of a small section of it. With an East or West wind the pilots would have to fly across wind all the way, but that would only be an additional test of skill. And in real war, infantry might well be situated in a wood or on a hill-side where a cross-wind pick-up would be the only possible method.

A Set-Piece Idea.

The other suggestion comes from an intelligent young woman who is keenly interested in flying. It is that next year, instead of a moss-grown warship of obsolete type the Set Piece should be an aircraft-carrier and that defensive deck flying machines of the Fleet Air Arm should fly from it to attack the approaching bombers.

One put the suggestion to an experienced deck-flying pilot, who approved it highly. But it was received coldly by an ex-W.R.A.F. officer who argued that if the Admiralty allowed such a performance at all it would insist on having it organised and operated by Naval Officers who had done a "course" with the R.A.F. and that they would inevitably bungle both organisation and execution.

Of course if we had deck catapults, like those of the U.S. Navy, such a performance would be quite easy. And perhaps by next year we shall have copied the American catapult just as we have copied the American parachutes, after years of agitation. Undoubtedly an exhibition of catapulted aeroplanes would cause quite a sensation.

A further suggestion, from the aforesaid ex-W.R.A.F. officer, is that instead of the Set Piece being put at the very end of the programme, so that everybody rushes off home immediately afterwards and increases the traffic-jam at the exits, there should be one or two events to induce people to stay a little longer and let the traffic get away gradually. Last year, for example, the chemical warfare specialists were allowed to put up a little smoke-work display which kept some tens of thousands of people amused and interested.

In the previous year some of the fireworks involved in the smokeworks set fire to a haystack over by the sheds along the railway bank, and caused no end of fun. This year there was a still bigger haystack in the same place and another one in the machine park on the opposite side of the ground, and nobody even put a match to them, though one pilot at the rehearsal on Friday did in fact murmur something about doing a little practice with Very pistols. Somebody seemed to be wasting opportunities for providing a little innocent entertainment for the crowds who could not get away.

Seriously though, there is a great deal to be said for keeping some sort of attractive though not vitally important event till after the Set Piece. The traffic problem might be made easier in such a way. And multitudes of tempers might be kept under control. And some little-considered branch of the R.A.F. might be given a chance of showing its capabilities. That being that, we may now proceed to the show itself.

The Display.

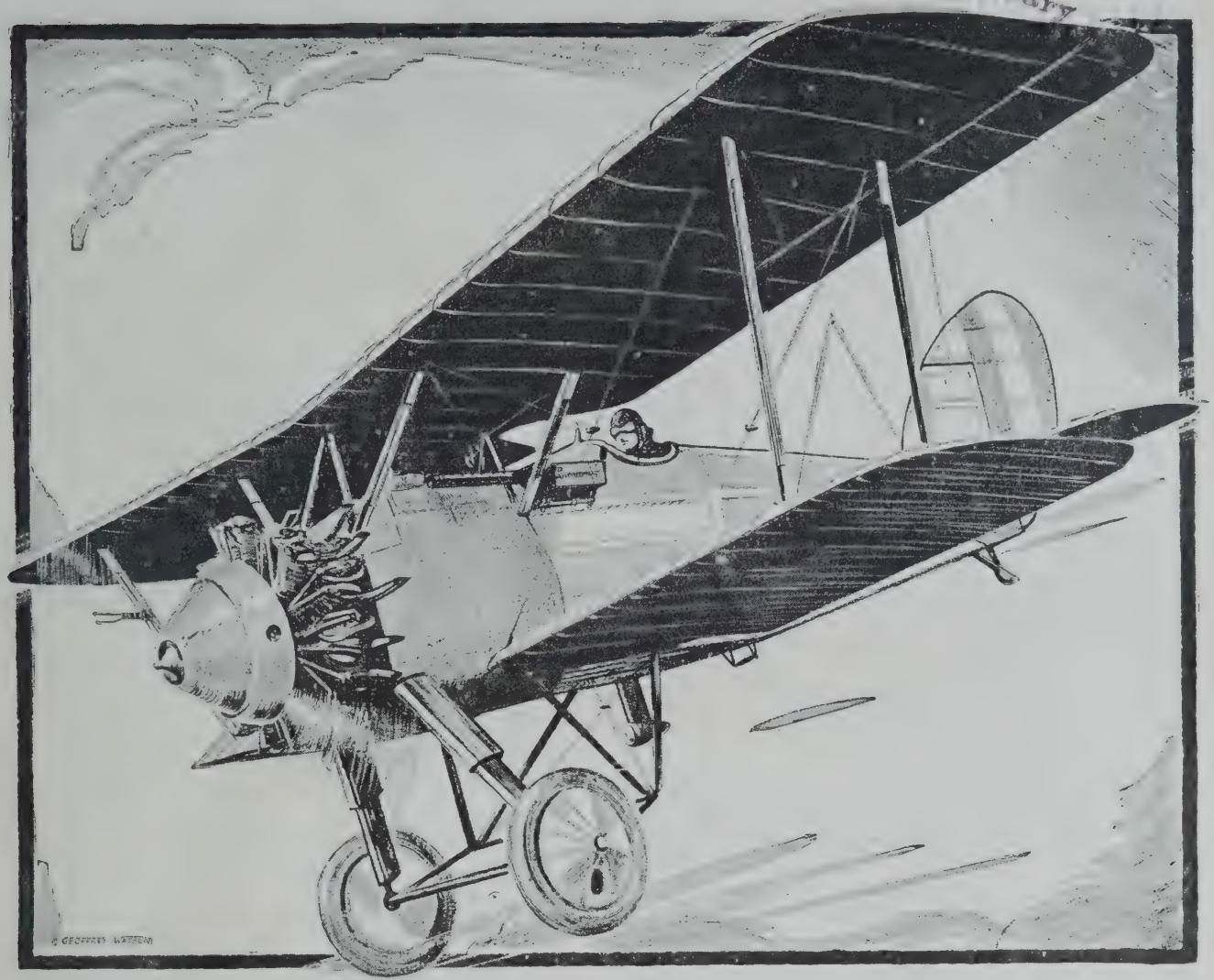
The first thing that must have struck visitors to Hendon this year was the excellence of the parking arrangements for cars. In the ordinary way one loves the London policeman dearly. In his proper place in the public streets, directing traffic and being guide, philosopher and friend to everybody, he is a pure joy. But put him in a private enclosure and give him a job outside his regular work and he is apt to become a public nuisance through being over-officious—and his senior officers are apt to develop silly theories, such as herring-bone or oblique parking and so forth.

This year the parking was done by the R.A.F. itself, and there was not a shadow of a reason for complaint. All the cars were parked facing the aerodrome, ten abreast, with a laneway between the tenth car and the first of the next ten, and each lane was numbered. Each driver as he came in was asked where he wanted to go. On the principle of first come first served, a driver could go down the hill towards the Royal Enclosure and chance how far back he was from the front line, or he could go up to the top of the hill and



THE SET PIECE.—The Fairey Flycatchers attacking the cruiser with machine-guns. With true Naval thoroughness the cruiser blew itself up before the R.A.F. bombers arrived.

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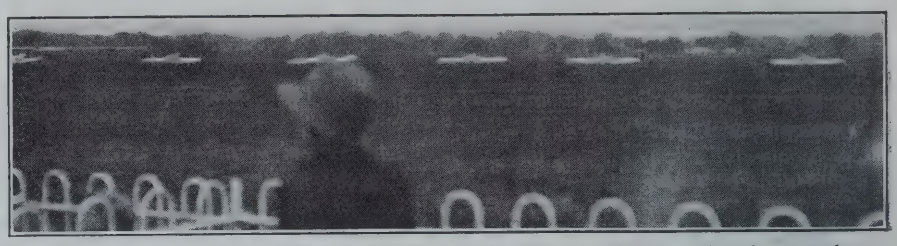
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



"THE LITTLE 'UNS."—The D.H.53s lined up for the start of the Air Ministry Directorate Race.

chance how close he could get to the railings. And if he wanted to leave early he could park (so long as there was room) behind the road which runs up and down the hill, so that he could drive out easily.

Naturally the late arrivals had to go where there was room, and some people with tickets for the 10s. enclosure had to leave their cars in the emergency parks miles from the home of the elect. But that was their own fault for being late, seeing that there were already a thousand or more cars in the grounds by 12.00 hours, and the show did not begin till 15.00 hours.

Of course there was the usual delay about getting away, but that can never be improved until two or three new roads can be got through parallel with Colindale Avenue to the North of the present exit, and along the railway bank by the side of the London Country Club to join Colin Deep Lane. With such outlets the grounds could be cleared in half an hour. The jams do not take place at the gates, but at the railway bridge by the Country Club and on Hendon Hill and in getting the cars out of Colindale Avenue onto the main Edgware Road. That is simply bad police-work.

The officer in change of parking and his N.C.O. assistants and the airmen who marshalled the cars into position deserve, each and all of them, to be congratulated. Nothing could exceed the courtesy and efficiency with which the "other ranks" did their work. Of course that is only what everybody expects from the men of the R.A.F., but all the same there is no harm in mentioning it.

The Landing Competition.

Event No. 1, the landing competition, for the Duke of York's Cup, was dull—as one has already dared to hint. It cannot be anything else. Seven units were represented, and all the pilots landed their Avros beautifully. Some side-slipped into the flagged space—150 yards square—and stopped on the spot, some "swish-tailed" into it, some did a nearly-stalled straight glide. Nobody broke anything, or at any rate not so badly as to make the machine unwheelable. And everybody showed skill and judgment. But it was not exciting, and it was hardly instructive, except by way of showing how slowly a good pilot can land a very handy aeroplane of a type which is neither a war-machine nor an air-liner, but merely the standard preliminary training machine of the World. Perhaps in the future the Cup can be transferred with the consent of the Royal giver to some other competition.

Incidentally, the programme says:—"It is assumed that there are high trees over the areas occupied by the spectators, and, therefore, anyone flying over this area, will be disqualified."—According to that, all the competitors ought to be disqualified. But with the wind as it was, from the North-East, there was no way of reaching the 150 yard square except over the spectators, so presumably that rule was quashed *pro tem.* or *sine die* or *nem. con.*

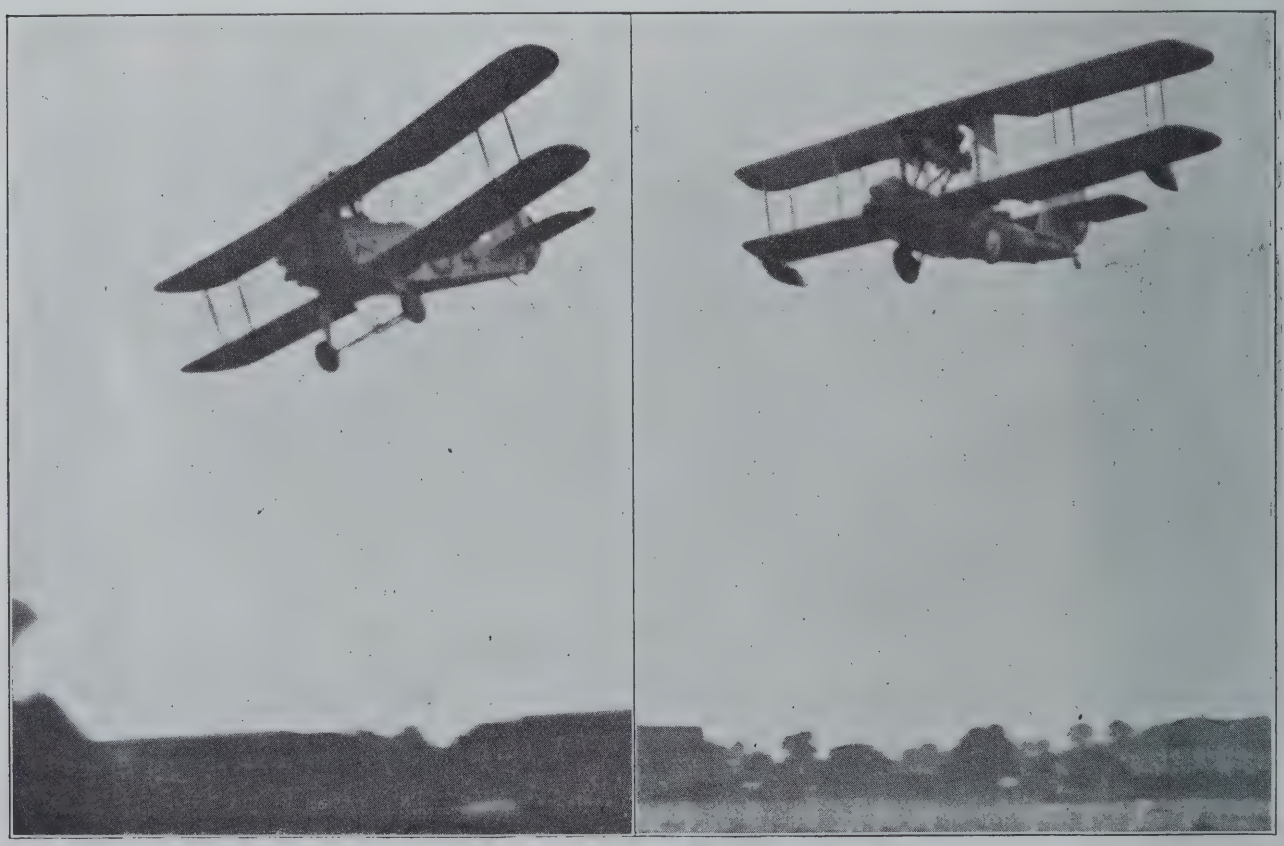
The winner of the Competition was Sjt. L. S. Snaith, of No. 2 Flying Training School, Digby. This is particularly pleasing, in that the only N.C.O. pilot in the competition put up the best performance. N.C.O. pilots as a class should be encouraged by the result.

Event No. 2, the Message Picking-Up Competition, was a very neat performance, though as suggested hereinbefore the work was done so far out on the aerodrome that the fine points of it passed unnoticed. Five units competed, namely the four Army Co-Operation Squadrons and the School of Army Co-Operation. The winners were No. 4 Army Co-Operation Squadron, Farnborough, the pilots being Flg. Off. R. G. Mullette and Flg. Off. R. T. Halliwell and the observers Flg. Off. A. D. Davies and Plt. Off. M. D. Ommanney.

Light Relief.

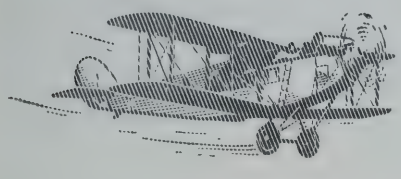
Event No. 3, the Light Aeroplane Race, without being actually comic provided a certain amount of light relief. It was a race for D.H.53s, the low-winged light monoplane produced by the de Havilland Company in 1923, and since deteriorated as to performance by Air Ministry experts.

Somebody with a sense of humour and of poetic justice devised this race for what might be called sitting officers of the R.A.F. at the Air Ministry as differentiated from flying officers. Officially the race was "Open to the Directorates of the Air Ministry." Unfortunately each Directorate was able



YOUTH AND AGE.—On the left is seen the new Hawker Hedgehog (Bristol Jupiter) a fleet reconnaissance machine, flying past the enclosure. On the right is the good old Supermarine Seagull (Napier) landing after "larning" the cruiser to go and vegetate "in fancied security."

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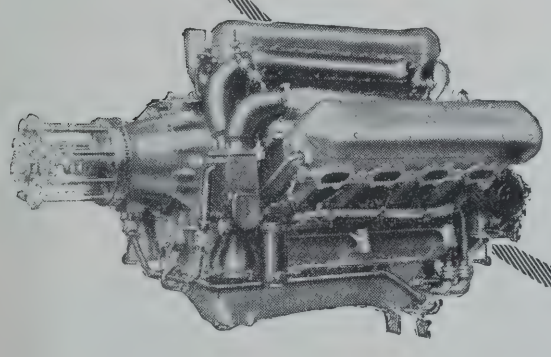


Sir Samuel Hoare, Secretary of State for Air, when at the Napier Works on the 15th May, said:



"I spent a good many hours of a good many days looking out of the window of the aeroplane, and what I saw was the word 'Napier' on the engine on each side. That gave me confidence. I felt there was no risk about it, and there *was* no risk about it."

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A REAL NOVELTY AT HENDON.—In the foreground is the Hawker Hedgehog (Bristol Jupiter) and behind it is the Vickers Vanguard (two Rolls-Royce Condors). On the left is the Jupitered nose of the Gloucester Gamecock and on the right is the rudder of the Short Springbok.

to put up a very good and experienced pilot, most of them wearing many war ribbons. The real sitters who are the people who do the harm to the flying personnel were not represented.

The race was won by Wing Cdr. W. Sholto Douglas, M.C., D.F.C., representing the Directorate of Equipment. He first appeared at an R.A.F. Pageant flying a four-engined Handley Page. The second man was Air Commodore C. H. Longcroft, C.B., C.M.G., D.S.O., A.F.C., himself Director of Personal Services. There is certainly no better pilot in the R.A.F. within two steps of his rank and very few better pilots even among the youngest officers. The third man was Flt. Lt. W. F. Dickson, D.S.O., A.F.C., of the Directorate of Operations and Intelligence. Somehow it seems apposite that the Directorate of Equipment should be first in a race with Personal Services next, leaving Operations and Intelligence to watch what they were doing.

The two combined Directorates of Scientific Research and Technical Development had entered Wing Cdr. H. M. Cave-Brown-Cave, D.S.O., D.F.C., as their representative, and his name appeared in the programme. This officer has had a distinguished career in Service aeronautics, having been an engineer lieutenant R.N. and one of the earliest of R.N.A.S. officers. He has always been technical but nevertheless has flown quite consistently since those early days. At the rehearsal of this race he gave an excellent exposition of a non-stalling non-nose-diving aeroplane with his D.H.53 but as this did not conduce to high speed he handed the machine over to Flt. Lt. C. H. Potts, D.S.M., in the actual race itself. Mr. Potts was himself one of the very early R.N.A.S. people and if one recollects rightly learned to fly at Eastchurch before attaining commissioned rank.

The race caused quite an amount of interest, because so many thousands of people are in fact interested in light aeroplanes, and the way Wing Cdr. Douglas and Air Commodore Longcroft threw their 53s round the mark-flag showed what good pilots can do with these machines. The former won just by the second or two gained on the turn. As somebody remarked, the Air Commodore merely disturbed the flag as he went by, whereas the Wing Commander must have taken the ear off the man who was holding it.

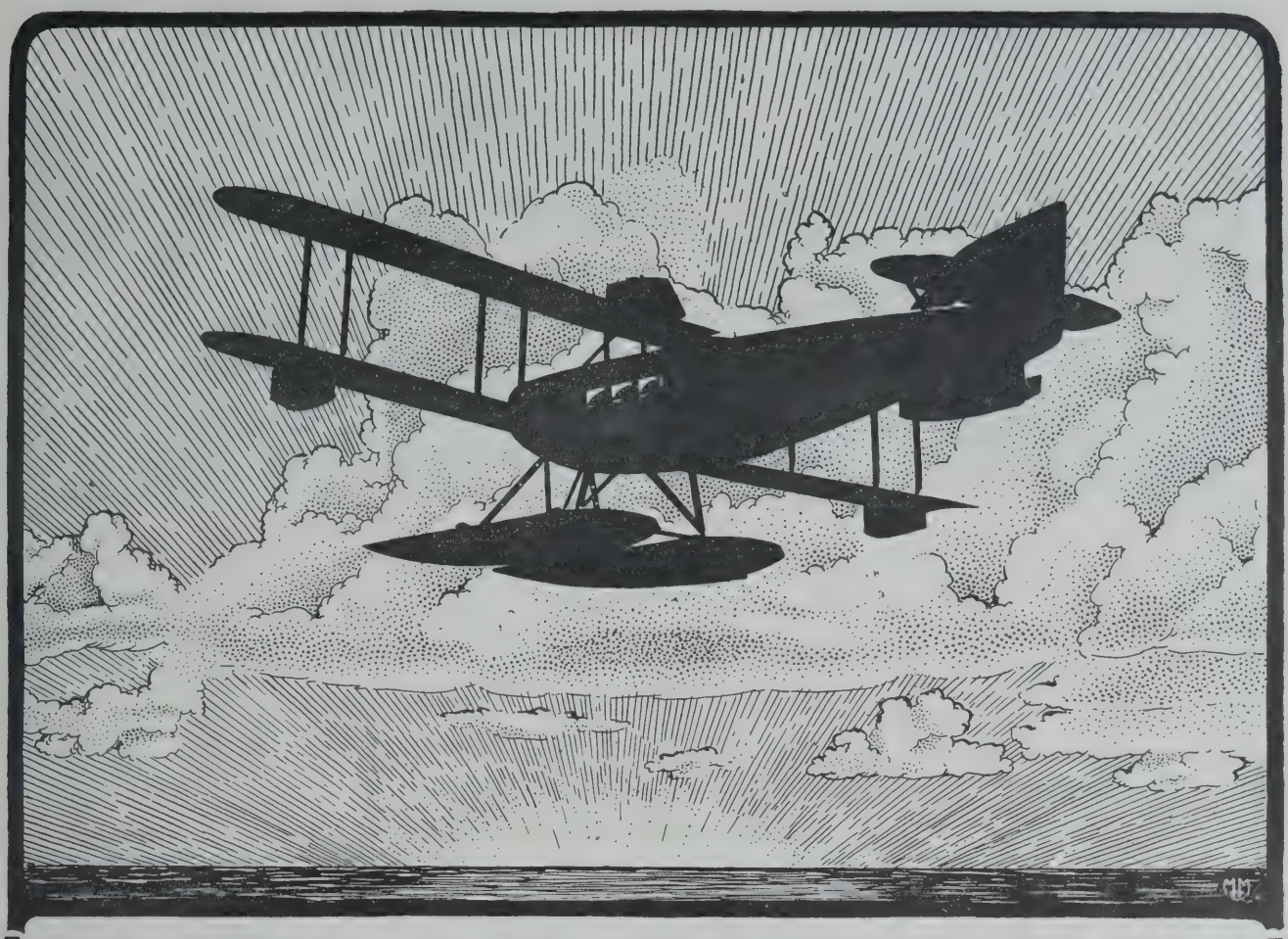
THE PARADE.

Event No. 4, the Parade of New and Experimental Types of Aircraft, was as usual vastly impressive to the spectators and the usual joke to those who were in the know. These machines were kept in what is unofficially called the Amusement Park, where they can be admired over the railings by the mere crowd while the privileged few are admitted within the sacred precincts to inspect them in detail. In previous Pageants the joke has been that the majority of the machines in the Amusement Park were of wartime design, though not produced during the War. This year at any rate showed a certain amount of progress in that there was actually no machine in the Park which was designed prior to 1919.

Unfortunately much of the interest in this parade was lost to the flying people owing to the absence of the Hawker Heron. Mr. Bulman who is now the Hawker test pilot had brought the machine out earlier in the day to entertain the crowd and had given an extraordinarily good exhibition of the machine's capabilities. Apparently her speed can be reduced to about that of a pre-war box-kite, and from that when the Jupiter engine is opened wide she can stand on her tail and climb almost vertically, as helicopters would like to do. Her controllability in every direction, at any rate in the skilful hands of Mr. Bulman, is extraordinary, and she is quite one of the prettiest radial-engined machines one has seen—but then the Hawker Company are the direct successors of the Sopwith Company and Sopwith machines have always been eveable as well as efficient. Unfortunately during her exhibition she split the tip of one blade of her airscrew and could not fly again.



A WORTHY SUCCESSOR.—Two views of the all-metal Hawker Heron (Bristol Jupiter) which performed so well at the Display. It is a direct descendant of all the famous Sopwith series of fighters. This photograph was taken at Brooklands before the machine left for Hendon. The machine is a single-seat fighter and is essentially a machine for quantity production.



A Silhouette of the FAIREY "FREMANTLE" SEAPANE.

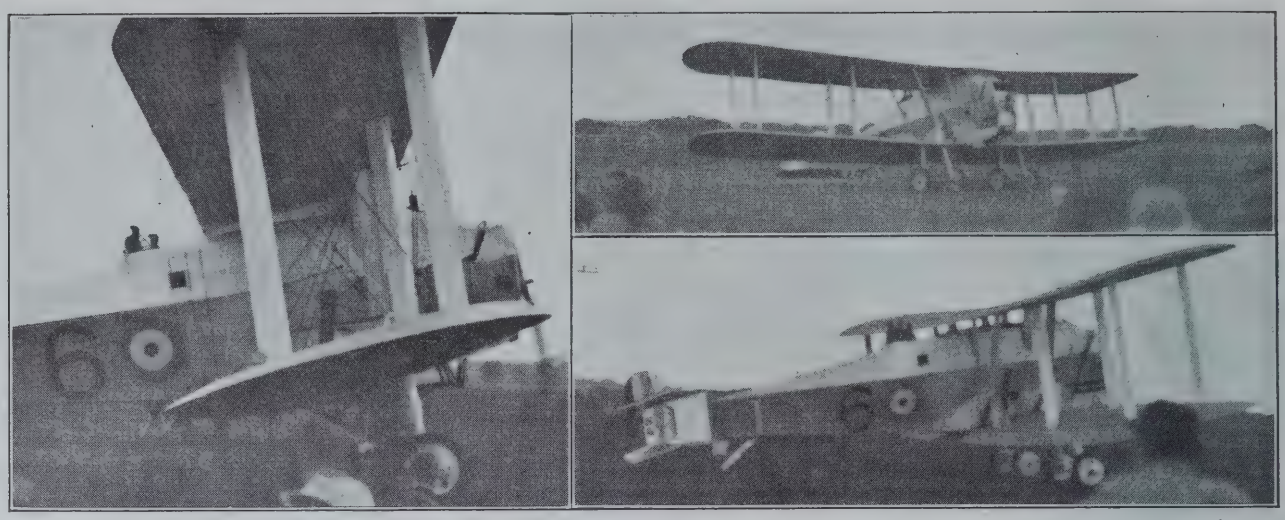
The "Fremantle" is one of the latest machines produced by the Fairey Aviation Company, Limited, for the British Air Ministry.

This aircraft possesses many remarkable features; the engine is a Rolls-Royce "Condor" of 650 h.p. and the petrol capacity allows for non-stop flights of 1,200 miles. In order that the entire fuselage space shall be available for other purposes, the petrol tanks are housed in the floats. This machine carries a crew of five and has a speed of 100 miles per hour.

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COMING OUT.—The Blackburn Cubaroo (1,000 h.p. Napier Cub engine) coming out of the Park for the Parade.

The parade was led by the Gloucester Gamecock, a single-seat fighter with a Jupiter engine, which is the latest development of the numerous rotary and radial engined Gloucester machines which started with the Mars series and are derived from the Nighthawk and the Nightjar and the Grebe.

The next machine out was the Short Springbok, a Jupiter engined two-seater designed for Army co-operation, with an all-metal fuselage and fabric-covered wings with steel spars and duralumin ribs. The first of the Springboks was produced in 1923 without the assistance of Air Ministry experts and is apparently still regarded as an experimental type, though several have been ordered by the R.A.F. The machine looks well and certainly has a very good turn of speed.

Next came the Hawker Hedgehog, a three-seater reconnaissance biplane, also with a Jupiter engine. It has been designed particularly for deck flying and one gathers that the machine is to be tried as an amphibian with floats. Apparently the observer sits immediately behind the engine with the pilot behind him and the protective gunner aft. All three are close together under the upper plane, so that the weights are well massed, though the passengers fore and aft are clear of the leading and trailing edges and can see over them.

This machine also flies very well and is said to be pleasing to handle. The speed range is high and like all the Hawker-Sopwith products it is very neat and light.

The fifth machine on the programme was the Handley-Page Hendon, a torpedo-carrier with a Napier Lion engine. One is told that this machine has leading edge slots and in addition has slotted flaps to the trailing edge as well as slotted ailerons working in conjunction with slots on the leading edge. There was a rumour among the R.A.F. people in the Machine Park that it had been withdrawn on the representations of the Admiralty because it is actually something quite new so far as most of the people interested in aviation are concerned, though of course the slot and flap idea is perfectly well known to every other nation, slots having been invented in Germany practically simultaneously with their invention in England.

The only thing that could be considered at all secret about the machine is the actual mechanism which operates the slots, and one could bet fairly safely that the air attachés of every nation know all about that mechanism. Still the Admiralty had of course to demonstrate its complete control of the Fleet Air Arm in some way and presumably this offered a favourable opportunity of doing something to spoil the R.A.F.'s day out and was too good to be lost.

The next machine to appear was the Blackburn Cubaroo with the 1,000 h.p. Napier Cub engine. The Cubaroo is certainly the biggest single-engined machine in the world and was quite the most impressive machine in the Park because of its enormous height and the colossal size of its fuselage. Readers of The Aeroplane will remember that it was tested successfully at Brough about a year ago and the drawings of an almost similar machine of Blackburn design appeared in an Italian paper in 1923. Evidently the Cubaroo has not suffered from her prolonged period of experimentation for she floated off the ground with her usual amiability and seemed to handle as well as ever.

Next came the Bristol Brandon, an ambulance biplane with Jupiter engine. This machine appeared in the programme of the Pageant last year but was not quite ready in time. As an ambulance it is one of the nicest jobs one has seen. The cabin is beautifully light and airy and looks much more like an up-to-date operating theatre than part of a flying machine. The machine itself is in its construction all that one expects a Bristol product to be. The workmanship and detail design reached as high a standard as ever. Of course in the parade the machine was not carrying full load any more than any of the others were but it seemed to get off well and to handle easily.

Following the Brandon came the D.H.54, the de Havilland Company's latest civil transport machine, a big fourteen-passenger biplane with a Rolls-Royce Condor engine. Those who have flown the machine say that she is particularly easy to handle, and that with a full load she lands remarkably slowly, so that in every way she is an improvement on previous passenger machines. Every line of the machine is so unmistakably de Havilland that it is difficult to find anything to say about her. She certainly is a first-class flying machine and one only hopes that on regular air line work she will behave as well as she looks.

The last machine in the procession was the Vickers Vanguard, a variant of the two-or-three-year-old Vanguard, fitted with two Rolls-Royce Condor engines. This particular machine was equipped for civil transport with seating for eighteen passengers, but as an aeroplane she is the same as the troop carrier which is designed to carry twenty armed men with full equipment. With her additional four or five hundred horse power she is undoubtedly a very nice flying



ON PARADE.—The Short Springbok (Jupiter) taxying in after the fly-past.

To Colonial Owner-Pilots

The Bristol Aeroplane Company, Ltd. know something of the difficulties under which a private aircraft is operated in the Colonies—the lack of suitable landing places and the difficulties in regard to spares and repairs.

They have developed, accordingly, two somewhat similar types of aircraft to meet Colonial conditions and needs, the first a two-seater dual control machine and the other a comfortable three-seater commercial aircraft.

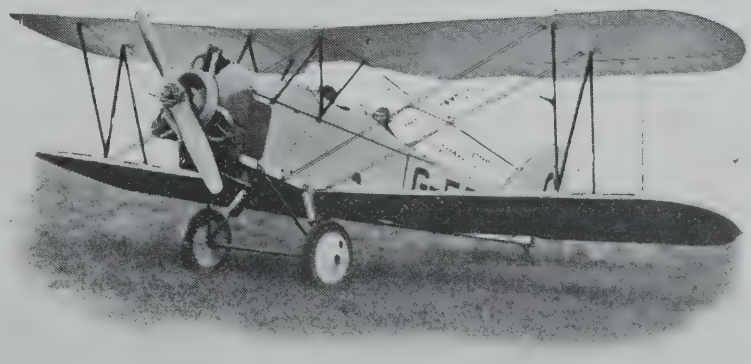
They are simple and robust in every detail of their construction. They can take-off from, and alight, in any reasonable-sized aerodrome, and any risk of damage from landing on a rough surface is practically eliminated by the very efficient oleo-spring undercarriage which is fitted.

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IN THE PARK.—The Bristol Ambulance (Jupiter) and the D.H.54 (Rolls-Royce Condor) in the New Machine Park.

machine and her general lines created a very good impression.

AIR DRILL.

Event No. 5, Squadron Drill with Radio Telephony, was one of the best shows in the programme. Sq. Ldr. Peck headed a formation of nine Gloucester Grebes with Armstrong-Siddeley Jaguar engines. They got off in three formations of three each and they performed every evolution which could possibly be imagined. Throughout the performance each flight of three machines held strictly to its own arrow formation and when the order was given by telephone for the wings to change sides each formation slid across the other just as if they had been held in position by some mechanical means.

Part of the show was the picking up of the Squadron Leader's orders by wireless on the ground and the transmission of these orders to the crowd by means of loud-speakers. What with the roar of the nine big engines in the air and the transmitted roar of the same engines through the microphone to the loud-speakers there was not much to be heard of the Squadron Leader's orders. Also unfortunately the loud-speaker at the corner of the R.A.F. enclosure which was supposed to serve the Royal box and the thickly populated area in its vicinity went out of action early in the proceedings. Apparently the crowd trod on the wires which connected the loud-speaker with the receiving set.

This of course was a great disappointment for the wireless people of the R.A.F. but one cannot honestly say that the crowd minded very much. The performance went off just as well without the words, and there are many people who prefer ballet to opera in any case.

The show ended by the Squadron Leader and his two immediate followers looping twice in succession while retaining accurately their arrow formation. It was one of the prettiest bits of flying one has ever seen.

This particular event took the place of the famous Snipe formation from the Central Flying School which delighted the crowd at the two previous Pageants. Regarded purely as an exhibition of exact drill in the air nothing could be better than 25 Squadron's show. But one must admit that purely from the point of view of the untutored spectator it was not as impressive as that particular moment when the five Snipe did a half loop and then flew solemnly in line on their backs right along the aerodrome. Still what the Snipe provided in impressiveness the Grebes replaced by their wonderful precision in spite of a strong and bumpy wind.

DIGNITY AND IMPUDENCE.

Event No. 6, an Aerial Combat between Sq. Ldr. W. H. Longton, D.F.C., A.F.C., on the Boulton and Paul Bugle with two Jupiter engines, and Flt. Lt. H. A. Hamersley, M.C., and Flg. Off. J. N. Boothman, on single-seater Gloucester Grebes with Armstrong-Siddeley Jaguar engines, was quite a wonderful show, although it was in many respects a high-speed version of the fight in a previous Pageant between Flt. Lt. de Haga Haig on the Boulton and Paul Bourges and the two Nieuport Nighthawks.

Sq. Ldr. Longton, who is best known as alternatively a pilot of Camels and light aeroplanes, is now commanding 58 Bombing Squadron on Vickers Vimys and Virginias, and his handling of the Bugle shows that his junior officers are set a pretty high standard of airmanship. The big Bugle, which incidentally is an all-steel job though covered with fabric, behaved in his hands like a single-seater. It is true that its loops were to be measured in yards rather than feet and that its period of spin almost had to be counted in minutes instead of seconds, but it did everything that a scout does, including flying on its back. One gathered that one member of the crew had to spend all his time pumping up pressure in the petrol tanks as the machine was upside-down for so long.

This year the fighting was a good deal closer than in previous years because the modern Grebe can carry itself over a loop just as big as that performed by the twin-engined machine, whereas in previous years when the big machine has done one of its enormous loops the attacking machines have fallen out of their loops while the big fellow was still on his upward path. Both the little machines gave a beautiful display of clever flying and one imagines that, judged on points, honours must have been about equally divided.

After the scrap was over the adversaries declared peace in the air—which incidentally may be one of the advantages of wireless telephones in the future—and came home in forma-



OVER THE AMUSEMENT PARK.—A formation of Gloucester Grebes (Armstrong-Siddeley Jaguars) of 25 Squadron flying over the Amusement Park.

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LINE UPON LINE.—The Fawn-plus-D.H.9a formation in full pageantry.

tion with a little Grebe tucked neatly behind each wing of the Bugle. They looked like a picture of Dignity and Impudence.

A Real Pageant.

Event No. 7, Wing Evolutions by Four Bombing Squadrons, was really the great event of the day. The Squadrons concerned were No. 12 Squadron from Andover commanded by Sq. Ldr. Alec Gray, M.C., on Fairey Fawns with Napier engines; No. 100 Squadron from Spittlegate commanded by Sq. Ldr. H. F. A. Gordon, O.B.E., also on Fairey Fawns; No. 39 Squadron from Spittlegate commanded by Sq. Ldr. H. V. C. de Crespigny, M.C., D.F.C., on D.H.9as with Liberty engines, and No. 207 Squadron from Eastchurch commanded by Sq. Ldr. V. Gaskell-Blackburn, D.S.C., A.F.C., also on D.H.9as.

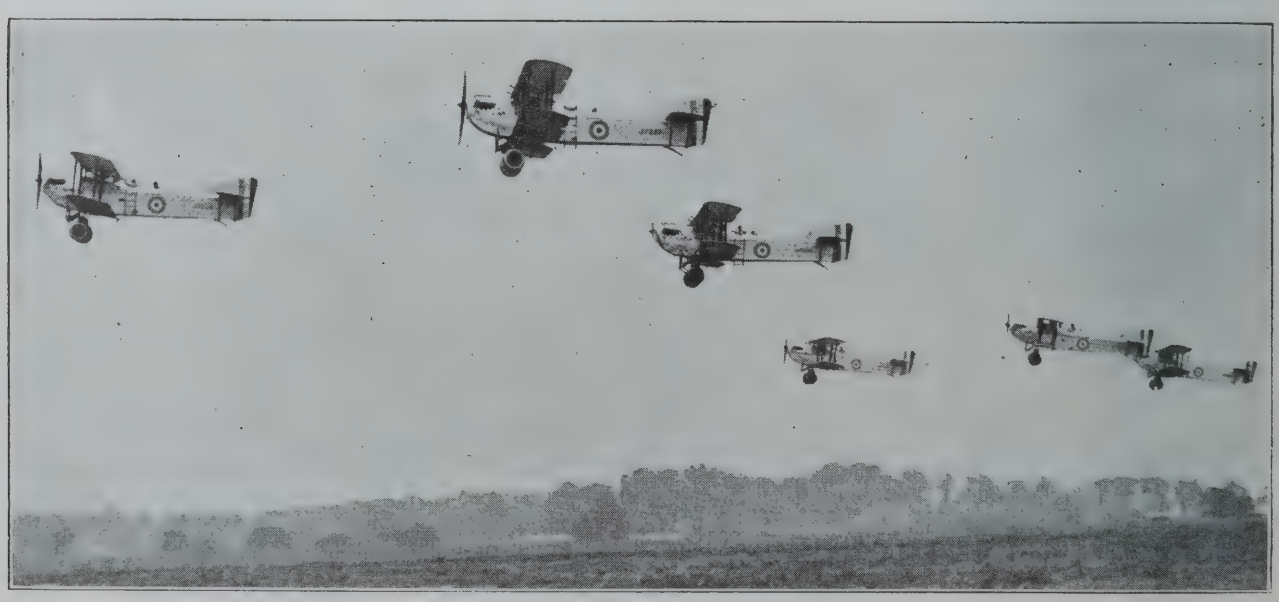
As a matter of fact they were not full squadrons but really three-quarter squadrons on peace establishment, or half squadrons on war establishment, seeing that each squadron consisted of nine machines divided into three flights of three each. Neverthless the 36 machines made the biggest mass of aeroplanes ever seen manœuvring in combination in this country and their 16,000 horse power or so made quite a remarkable noise.

Unfortunately the aerodrome is too small to start all 36 machines off at the same time, so nine machines started at a time. Consequently we missed the almost stunningly impressive roar of the eighteen machines starting at once which we had last year. However when the machines were in the air there was no doubt about their impressivesness as a spectacle.

If ever anything had a right to be called an aerial pageant it was the awe-inspiring progress of those four formations across the aerodrome. The performance cannot be described in words, it can best be judged by the photographs which accompany this article.

The machines manœuvred in arrow formation and in line abreast and in squadron column and other formations. The amazing thing was that in spite of bumpy wind and very indifferent light owing to thick low clouds the individual machines kept such extraordinarily good formation. In the manœuvres each squadron confined itself more or less to one plane. If one squadron flew over or under others the individual machines of each squadron kept on the same level, more or less. They did not do the formation in which the nine machines were each one above another in a vertical upright line. Presumably that formation was not done because it is perfectly useless in time of war and is a distinctly dangerous manœuvre in which several people were killed while practising last year.

After the evolutions were over the various squadrons landed



FORMATION WORK.—The Fairey Fawns (Napiers) starting off for the mass formation work.

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In 1923 the race was won by Mr. F. C. Courtney in a Siddeley "Siskin" (Siddeley Jaguar engine) and last year, the winner was Mr. Alan Cobham, who flew a D.H.50 (Siddeley Puma Engine) entered by Sir Charles Wakefield, Bart.

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GOOD FORM.—Two formations of D.H.9as at the Display. The machine at the bottom of the rear formation is taking photographs from above.

beautifully in formation. But owing to the side drift of the wind the left-hand machine of one squadron looked like passing over the Royal box, so the Squadron Leader ordered it up again and it flew a short circuit landing behind the rest. But the actual approach in formation was faultless.

THE THRILL OF THE DAY.

Event No. 8, Low Bombing, was by far the most exciting performance of the day, just as the wing evolutions were the most impressive. A flight of No. 25 Squadron on Grebes piloted by Flt. Lt. E. B. Mason, Flg. Off. K. K. Brown and Flt. Off. E. H. Fielden, and a flight of No. 41 Squadron on Siskins piloted by Flt. Lt. H. W. G. Jones, M.C., Flg. Off. R. C. B. Brading, D.F.C. and Flg. Off. S. H. G Trower attacked a mock-up tank in the middle of the aerodrome.



NOT A COLLISION.—Two D.H.9a formations passing. The machines which appear to be colliding are not really within a hundred feet of one another.



IN FORMATION AND INFORMATION.—The ineuphonious loud-speakers with the Fawn-plus-D.H.9a formation overhead. The formation without the loud-speakers would have been preferable.



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The two formations went up together and after half a circuit of the aerodrome broke formation, each machine going to a different point of the compass. Thence they proceeded to dive onto the tank independently and apparently haphazard, though in fact there must have been a good deal of method in their madness otherwise there would have been a most unholy crash.

The first machine dived on the tank with machine-guns blazing and at a height of about twenty feet dropped a nine-pounder practice bomb, the pilot yanking his machine up into a most terrific zoom as soon as he had loosed the bomb. Before the smoke from the bomb was well in the air another machine had dived almost at right angles to the path of the first one, and as it shot upwards after dropping its bomb in came another one from a different angle. The machines dived over the heads of the crowd and they zoomed up in the faces of the crowd. The tank was smothered in smoke and as the machines dived they too disappeared in the smoke cloud.

On the dive those machines must have been doing a lot over 200 miles an hour, and how the wings stayed on them as the pilots pulled them out of the dive must have been a puzzle to anybody who knew anything about aviation but happened to be unfamiliar with British workmanship and the careful supervision of the Aeronautical Inspection Department.

The machines swooped down so quickly one after the other that two of them did very nearly collide just over the top of the tank, one pilot pulling his machine round sideways just in time to avoid another machine which was crossing his bows. And a moment afterwards two others diving from opposite directions passed one another within inches actually at the bottom of their dives.

Altogether it was a thoroughly scaring performance except to those possessed of the gladiatorial instinct. The pilots who were looking on were shivering at the knees while cold drops trickled from under their hats, but the majority of the women-folk shouted with excitement and nearly wept when it was over One young woman in fact wanted to know whether we could not call for an encore.

Furthermore the performance was not entirely without its danger to the spectators. An ex-W.R.A.F. officer happened to be standing near a young man when an empty cartridge case from a machine-gun came through the brim of his hat and neatly removed his horn-rimmed spectacles. He put up his hand and ejaculated "What's that?" The ex-W.R.A.F. remarked in her coldest wartime tones, "Oh, you've been shot." Whereupon the young man sat down suddenly on the grass and showed all the preliminary symptoms of being physically ill. However he found that he had not really been hit and thought better of it. But he continued to look badly frightened for some little time afterwards.

What would have happened if a bomb-release had stuck and had only shaken its bomb loose over the crowd would have been very unpleasant. Still the performance was so thoroughly entertaining that the risk will be well worth taking again next year.

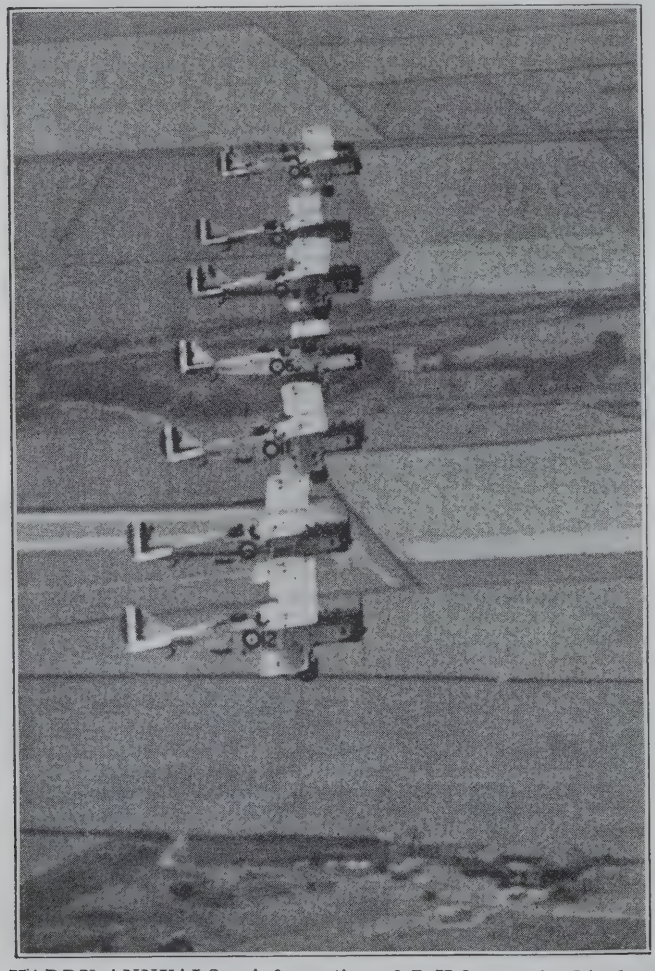
One was told that when this event was being organised the Royal Tank Corps wanted to participate by putting a real live tank on the aerodrome complete with crew, merely giving it an extra sheet of armour all over the top. They were certain that the 9-lb. practice bomb would not penetrate their armour and apparently they were prepared to take the risk of what might happen if a bomb came in obliquely and got them in a tender spot on the side or under the nose.

Theirs was a thoroughly sporting offer but the Air Ministry, on the whole wisely, refused to take the chance of a tank being set on fire with the men in it. Nevertheless the Tank Corps deserves thanks for its sporting offer, which may well be contrasted with the Navy's flat refusal to let the R.A.F. use real large-sized bombs on even the most obsolete of warships which is only intended to be sunk by naval gun fire. You see the difference between the two Services is that the Army has confidence in its latest weapons and the Navy is afraid of having its weakness exposed.

Grace after Meat.

Event No. 9, Flight Evolutions for the Challenge Cup presented by Captain the Honourable F. E. Guest, C.B.E., D.S.O., formerly Air Minister, came as a comparatively peaceful contrast to the tank bombing. The competition was open to all flights of fighting squadrons, but for the Pageant itself the competing flights were narrowed down to a flight of Siskins from No. 41 Squadron piloted by Flt. Lt. H. W. G. Jones, M.C., Flg. Off. R. C. B. Brading, D.F.C., and Flg. Off. S. H. G. Trower (the same team who had done the tank bombing) and a flight of No. 32 Squadron on Grebes piloted by Flt. Lt. H. E. Walker, M.C., D.F.C., Flg. Off. C. W. A. Scott, and Plt. Off. D. D. J. Broadway.

The two formations did all sorts of graceful manœuvres,



HARDY ANNUALS.—A formation of D.H.9as at the Display. In spite of these being of 1917 design, the D.H.9as are as yet unsurpassed for performance, considering their engines and equipment.



A DECK ATTACK.—Fairey Flycatchers (Armstrong-Whitworth Jaguars) after attacking the overgrown cruiser.

A

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HAVE NOW BEEN FLOWN

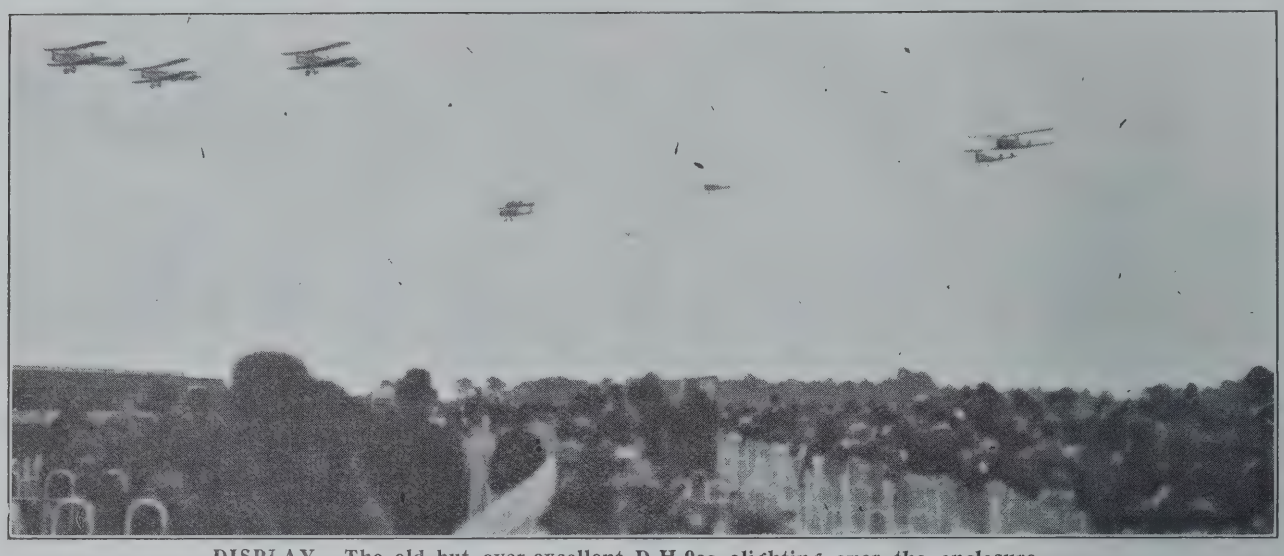
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DISPLAY.—The old but ever-excellent D.H.9as alighting over the enclosure.

sticking strictly to their formation all the time. When they had performed all the prescribed figures each formation proceeded to chase an inoffensive Bristol Fighter, representing enemy aircraft, one of the Fighters being piloted by Sq. Ldr. R. S. Maxwell, M.C., D.F.C., and the other by Flt. Lt. C. N. Lowe, M.C., D.F.C. In this the three machines of each formation attacked its flying target simultaneously and showed the skill that is necessary to prevent attacking machines from getting in one another's way.

The pilots of the machines had instructions to fly quite straight, as presumably they represented the big, many-gunned alleged-to-be-self-defending multiple-engined bombing craft on which so much money is being spent to-day. Consequently, considered as targets, they were absolute sitters for the high-speed fighters just as these great big bombing machines will be in the next war. If the pilots of the Bristols had been allowed to throw them about as a Bristol can be thrown the single-seaters would have had a very difficult job. And in the next war in all probability, when we have discovered the uselessness and costliness of our enormous bombing machines and have come back to the idea of one man one machine, one bomb, with an escort of defensive aircraft, we shall find that our pursuit ships, as the Americans call them, will have some such job to do. Meantime that particular event made quite a pretty show.

A Surprise Turn.

Event X, as one may call it, was an unrehearsed performance which came immediately after Event No. 9. As soon as the six fighters had landed there appeared over the aerodrome three Fairey Fawns belonging to No. 12 Squadron, which machines had not landed with the rest of their squadron after Event No. 7.

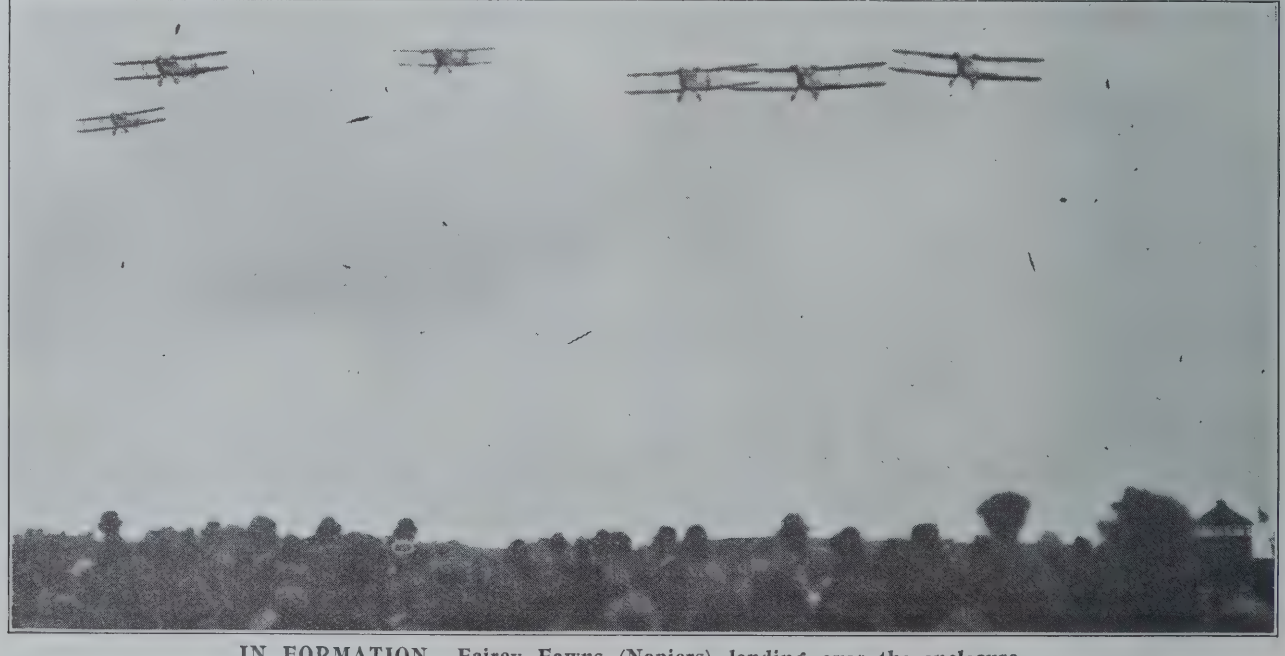
Early in the afternoon a rumour had gone around among the knowing ones that three pilots were to do parachute drops just to show that the R.A.F. really has got parachutes. Personally one is opposed to public parachute dropping because although flying is dangerous parachuting is considerably more so, and an accident caused by a parachute which failed to open at such a show as the Pageant would give a severe nerve shock to several thousands of people, very possible in some instances with fatal effect.

If an aeroplane crashes ever so badly the crowd can always hope that the pilot has escaped fatal injury, but if a parachute fails to open there can be no doubt whatever about the result. Therefore one thinks that the risk was hardly worth taking. So far the Irvine parachutes have given 100 per cent. efficiency, but no mechanism can maintain that standard for ever, and some day one must fail to open for some reason or other. As it happened the three parachutes did open perfectly on Saturday.

When the machines came over the aerodrome people with glasses could see that men were standing on what looked like ladders outside the fuselages of the machines. Then the word went round in a few seconds that this was a parachute show. And as soon as the machines were well over the far side of the railway bank the three passengers rolled off the machines almost simultaneously.

The parachutes acted so quickly that there was hardly time to see the pilot parachutes open before the big main parachutes opened. The last man to get away seemed to descend slower than the other two, and when he actually reached the ground he lay there apparently unable to rise till he was helped to his feet by two or three airmen who ran to him. But after that he walked back to the enclosure unaided, so presumably he was only slightly stunned or possibly tangled up in his harness after he landed.

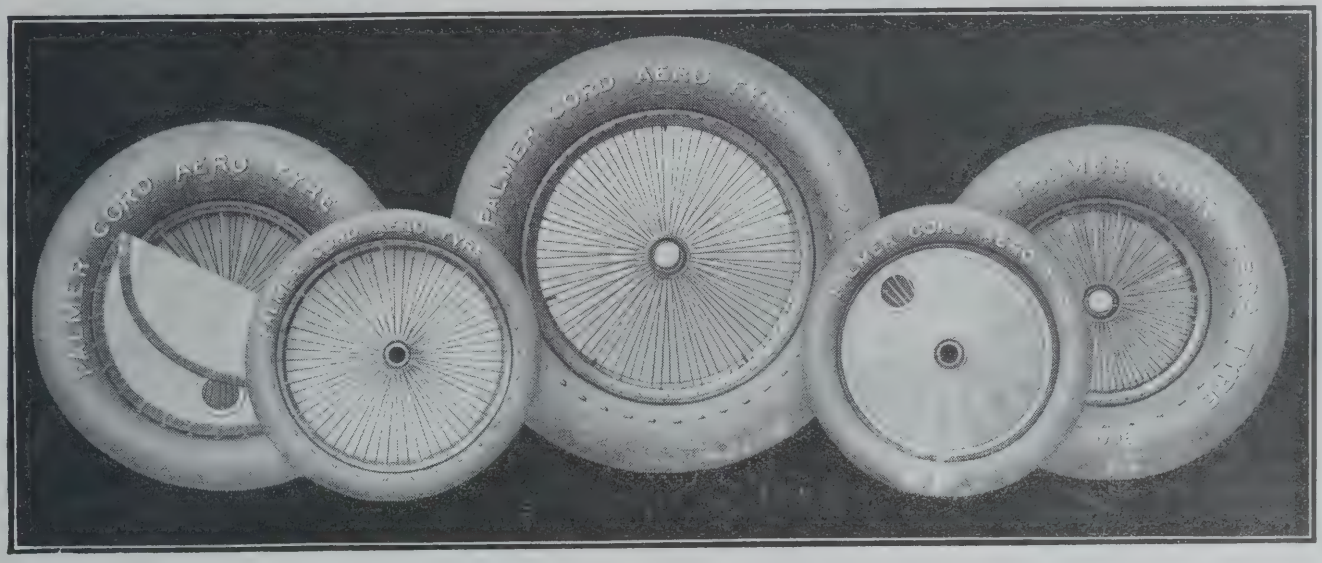
As the performance came off all right without anybody being hurt it certainly was worth doing, because it answered all



IN FORMATION.—Fairey Fawns (Napiers) landing over the enclosure.

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300×60	16	111.12	25.4	Central	,,	112	150.	38.09	Central	,,	210	185.	60.32	Central
,,	17	72.39	12.7	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	,,	147	178.	55.	Central	,,	149	185.	55.	Central
,,	138	130.	38.09	Central	750×125	77	178.	44.45	132/46	,,	155	220.	66.67	Central
575×60	21	160.	28.	Central	,,	92	185.	55.	135/50	,,	166	185.	55.	125/60
,,	34	150.	31.75	104/46	,,	95	185.	55.	Central	900×200	107	185.	55.	Central
,,	111	150.	38.09	104/46	,,	96	178.	55.	132/46	,,	108	185.	55.	125/60
600×75	21	160.	28.	Central	,,	99	178.	38.89	132/46	,,	128	220.	66.67	Central
,,	34	150.	31.75	104/46	,,	112	150.	38.09	Central	,,	137	250.	80.	Central
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50	,,	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	,,	85	185.	55.	Central	1100×220	134	220.	66.67	Central
,,	79	178.	44.45	Central	,,	161*	185.	55.	135/50	,,	136	250.	80.	Central
,,	100	178.	38.09	132/46	,,	163*	185.	66.67	135/50	1250×250	133	250.	80.	Central
,,	101	178.	31.75	132/46	,,	169†	185.	55.	135/50	,,	154	304.8	101.6	Central
700×100	77	178.	44.45	132/46	,,	211*	185.	60.32	135/50	1500×300	115	304.8	101.6	Central
,,	92	185.	55.	135/50	1000×150	131	220.	66.67	Central	,,	126	304.8	152.4	Central
,,	95	185.	55.	Central	,,	150	185.	55.	Central	1750×300	139	400.	152.4	Central
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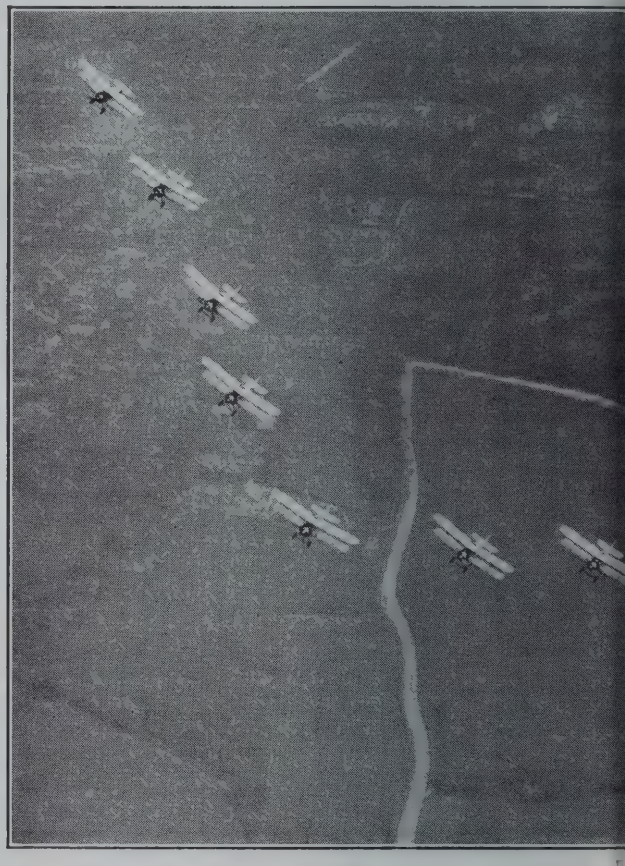
AERIAL DERBY CUP,
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1922	-	- ,	179.5 ,,
1923	-	- ,,	192.4 ,,

HOLDERS OF BRITISH SPEED RECORD, 212.2 m.p.h.

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(Machine in each of above events fitted with Napier engine.)

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FORMATION FLIGHT OVER LONDON.

E R.A.F. DISPLAY AT HENDON.



"UP GUARDS AND AT 'EM."—The Vickers Virginias (Napier) about to discharge what must have been Aerial Torpedoes, at long range, seeing that the bombs went off long before the bombers reached the ship.

the silly questions that have been asked in the House of Commons lately about parachutes. But it was a gamble for all that.

The three parachutists were Flt. Lt. F. O. Soden, D.F.C., No. 41 Squadron, Flg. Off. W. N. Lancaster, No. 9 Squadron and Flg. Off. C. R. Stewart, No. 12 Squadron. Mr. Soden was sent to the United States lately to study the American methods of using their parachutes, and he also visited Mr. Irvine's factory at Buffalo and saw exactly how the Irvine parachutes are manufactured and packed. Consequently he has been the leading exponent of parachutes since his return and has made quite a number of parachute drops. At the same time he himself would be the last person in the World to claim any particular credit for what is now being done with parachutes in the R.A.F., for one gathers that he was selected by the Personnel Department to go to the States without his having previously shown any particular interest in parachutes.

Personally in spite of one's dislike of public parachuting one felt rather pleased at seeing these three successful simultaneous drops. For as the R.A.F. Pageant, or Display, is the culmination of the R.A.F.'s annual training so one regarded this rather as the culmination of the agitation in favour of parachutes which one has conducted in this paper and in other places ever since the year 1916 or thereabouts, when our former enemies, the Germans, began to save their pilots' lives by using parachutes as standard equipment of fighting machines. Perhaps after these eight years or more one may be permitted to murmur mildly "I told you so."

The Naval Display.

Event No. 10, the last on the programme, was the ever-welcome Set Piece. This year the imaginary target was described as "An enemy cruiser, the last of the commerce destroyers which, on the outbreak of war, were at large on the trade routes of the World" and "has taken refuge up a tropical river, where she may refit. Screened from seaward by the tropical vegetation, she lies in fancied security." The incident was based on the hide-and-seek game which was played between the R.N.A.S. and the German cruiser *Königsberg* up the Rufigi River in East Africa in the early days of 1915. For further particulars apply to a certain bearded squadron leader of the R.A.F. who was there at the time.

In her fancied security the ship at Hendon was discovered by a reconnaissance aeroplane which was shelled, naturally ineffectively, by naval Archies from the cruiser. The reconnaissance machine in this case was a Supermarine Seagull.

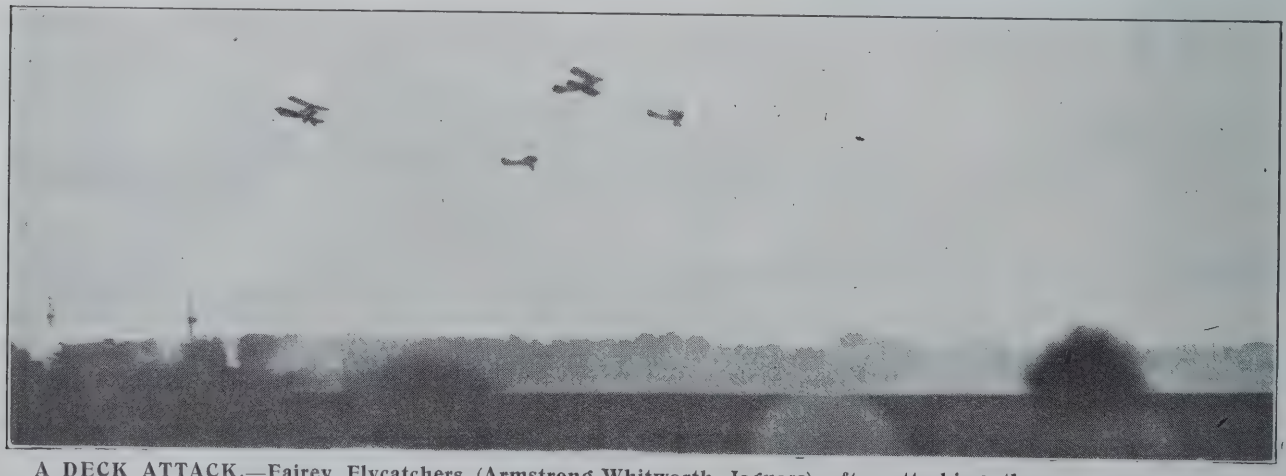
Following her came five Fairey Flycatchers who swept down on the ship and cleared the decks with their machine-guns. After that came a bombing formation composed of three Avro Aldershots of 99 Squadron, three Vickers Virginias of No. 99 Squadron, three more of No. 9 Squadron and three more of 58 Squadron. The nine Virginias and the three Aldershots with full bomb loads would be about enough to heave a Spithead Review out of the water, let alone a small moss-grown cruiser lying in a shallow river. Still it gave the bombing squadrons a chance of disporting themselves, so everybody was pleased.

Certainly the stage managers and the scenic artists and the actors of the R.A.F. deserve to be congratulated. Talking to a group of R.A.F. officers at the rehearsal the day before the Pageant one remarked casually that if there was one man in the R.A.F. who deserved to be promoted it was he who conceived the beautiful allegorical idea of putting a moss-grown warship in the middle of the R.A.F. Pageant for everybody to admire as a sign of the times. An officer with lots of braid on his sleeves sprang involuntarily to attention and blushed, so one imagines one knows where the praise ought to be placed though for Service reasons one refrains from placing it.

Certainly as a spectacle that ship was wonderful. She was simply surrounded with sheltering palms, complete with shade as fitted. And some little way off her bows was an island beautifully furnished with a wireless station and a beer-garden, apparently the nearest approach possible to a naval Heaven.

Round the ship and in and out between her and the island sculled the most beautiful oriental junks, praos, feluccas, dhows, sampans or whatnots, and at intervals a celestially blue steamboat, likewise mounted on a motor-lorry, maintained swift communication between ship and island and elsewhere, apparently carrying supplies of ammunition and refreshment. She went ahead and astern and bumped heavily into piers and did all sorts of funny naval things most realistically.

Meantime people in the tower above the beer-garden flag-wagged and flash-lamped vigorously to nowhere in particular, and an energetic little man on a scaffold halfway up one of the funnels of the ship splashed paint about, as representing the refitting of the ship, in a way which seemed to indicate that the ship had been equipped by a very able first lieutenant from the supplies of a very inadequately controlled dockyard. The gentleman with the paint brush, apparently as fearless as the Gentleman with a Duster, continued to paint in spite of



A DECK ATTACK.—Fairey Flycatchers (Armstrong-Whitworth Jaguars) after attacking the overgrown cruiser.

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the attack by the Flycatchers, and only disappeared when the big bombers approached.

The bomb attack itself was apparently designed to allegorise the progressive habits of the R.A.F., apparently in contradiction to the retrogressive ideas of the Navy, for the first bomb explosion supposed to have been caused by the Avro Aldershots occurred at least two seconds in front of the arrival of the machines. Two or three large columns of water and mud combined shot into the air well ahead of the bombing machines. Fortunately the Aldershots were sufficiently high to escape any ill effects, but one imagines that some of the smaller particles must have reached them.

Anyhow the ship duly burst into flames in the approved manner, much to the joy of the spectators, though one kindly damsel lamented the waste of the good work which had been done on the funnel by the little painter man. It was all very entertaining and quite amusing.

And So Home.

After that everybody went home as there was no "turn" after the set piece to act as what the American music-hall managers call a "chaser" after the star turn. Of course there was plenty of time then to walk about and say How-do-you-do to people, and one well-known pilot struck the ingenious idea of starting at the gate and walking up between the lines of waiting cars having a chat with the inmates of each car in which he happened to see friends, his intention being to let his own car stand where it was till everybody else had gone.

There is always so much difficulty in meeting the people one wants to meet at the Pageant and one always meets so many people whom one did not expect to meet that this strikes one as being a very good way of really seeing one's friends, especially as there is no flying going on to distract attention from conversation. Possibly after the next Pageant the lines of cars heading for the gates will be festooned with pedestrian friends who will help to pass the weary time of waiting to get out.

Anyhow the whole show was thoroughly enjoyable. The wind was cold but not unduly so to those who had taken the ordinary precautions necessary at any English outdoor gathering, which was adequately described by one visitor as bringing a fur coat and a Spanish shawl. There was no rain that could be noticed and thank Heaven there was no mud in the car park. So everybody concerned, even the Meteorological Department, are to be congratulated on a very successful afternoon.—C. G. G.

A FEW IMPRESSIONS.

Somehow or another the Pageant (get thee behind me, Display) seemed to one a much more enjoyable function than in previous years. Everything seemed to be run well and one would especially like to call attention to the tactful way in which Sq. Ldr. Maynard acted as the Cerberus of the Amusement Park. He permitted anyone through the gate who could show any just cause why they should be allowed in and kept all others out. Consequently the Park was never over-crowded, and it was cleared quite tactfully when the time came to take the machines out for their Parade.

One certainly missed some of the events of previous years. For instance, now that the traffic is controlled by R.A.F. Troops one missed the preliminary parking competition between the Editorial Talbot and the Police.

Many people were at a loss to know who the gorgeous Pyrene men dressed in bright red really were. Some thought they must be members of the Air Council. Harold almost turned the same colour through sheer envy. Later he almost had to be carried away on a stretcher when he beheld the gorgeous plus-fours of a prominent member of the Hawker Company. Harold threatens reprisals.

The Wireless behaved as wireless so often does and when 25 Squadron were performing to Royal Command the noises emanating from the loud-speaker were reminiscent of the noises heard when the B.B.C. say they are relaying America. Also there was more than a suspicion of the song of the nightingale as broadcast. Could the wireless people have been mixing their dates?

An elderly and distinguished Army Officer seemed more interested in the feminine portion of the population of the R.A.F. Enclosure than in the flying. He was promptly called to order by a junior officer, who said, "Come, come, Sir! I brought you here to look at the bird-men *not* at the bird-women,"

Just after one of the big formations had landed a few feet over the heads of the enclosure a lark left its nest on the aerodrome and gave a little solo exhibition. Whereupon Mr. Shaw, of petrol fame, remarked—"It's on Shell too—egg-shell!" His hearers bore up bravely.

Incidentally, one was presented by Mr. Shaw with tickets for his, or the Shell Company's, box or cattle-pen in front of the public enclosure among the seats of the mighty, such as Air Vice-Marshals *et cetera*, but they were commandeered by the Editor, who said he wanted to take photographs. One hopes the results justified the piracy.

And then at the end of the day we all tried to fight our several ways back to the Metropolis. Some got through and some fell by the wayside and were trampled on. And some said in their wisdom, "It is too late to Wimble, therefore let us Wemble." And it was so. And there was much joy in the land.—G. D.

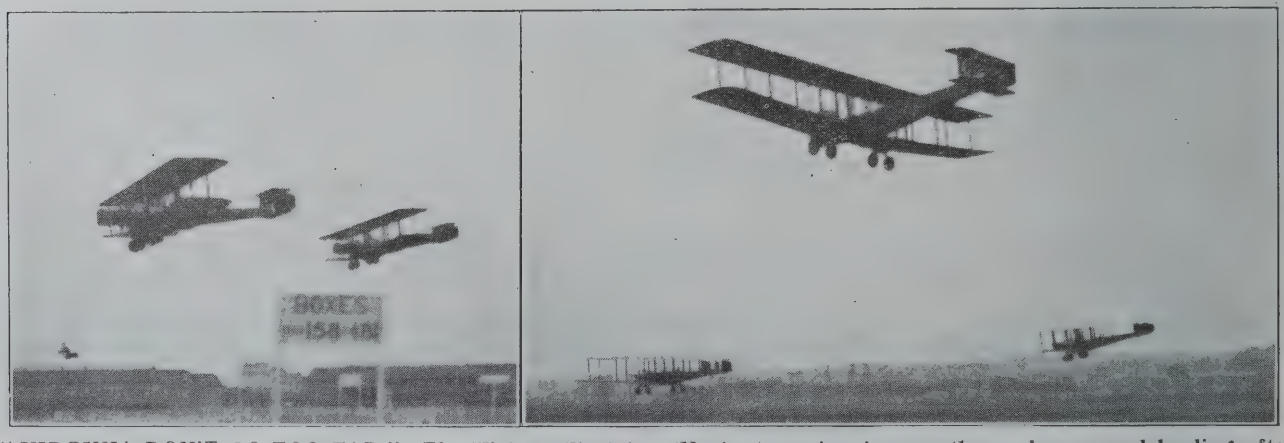
PROGRESS AT THE PAGEANT.

By W. H. SAYERS.

It is a general maxim in the commercial world that once a trade name or description has acquired a wide and favourable significance any change in that name or description can be made only at some considerable risk. The decision to describe by the term Display the annual R.A.F. event which during the past five years has acquired for itself so high a reputation under the name of Pageant can be defended on many grounds—and the evidence of Saturday was fairly conclusive that little or nothing in popularity was lost as a result of the change—which incidentally found but a limited acceptance on the part of most of those present. As the Pageant the affair has become known and seems likely to continue to do so.

As a matter of fact there was a distinct change in the nature of the proceedings as well as in the official title of the event. There was less display, less of the purely spectacular element than had been the case in the preceding Pageants, and more of an exhibition of the development of Service flying for business purposes. The bombing of the cruiser—the one remaining piece of pure "Pageantry"—was from the spectacular point of view probably less impressive than the set pieces of previous years. On the other hand it actually served to stage an excellent display of aerial tactics on the part of the Flycatchers, which ostensibly machine-gunned the enemy's deck, and of an excellent exhibition of formation flying on the part of the bombers. These latter incidentally must have been using some hitherto undescribed form of gliding bomb, for all the bombs exploded round the cruiser appreciably before the attacking machines had actually passed their objective. [Has the "aerial torpedo," beloved of journalists, really been discovered at last?—Ed.]

From the purely technical point of view the Display was markedly different from any of the preceding Pageants in that whereas in the past the great majority of the machines engaged were of war-time types, on this occasion the majority of the aircraft taking part have been designed and built since the War.



"VIRGINIA DON'T GO TOO FAR."—The Vickers Virginias (Napiers) coming in over the enclosures and landing after returning from bombing the colourable imitation of the "Königsberg."

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The D.H.9a and the Bristol Fighter still played a considerable part in the proceedings, but apart from these two types practically no war-relics took part in the proceedings.

Under the circumstances therefore one might reasonably have expected that there would have been a noticeable difference in the average of aeroplane performance exhibited on this occasion.

In some respects at least the difference was obvious. The climb from the ground of the Siskin and Grebe single-seat fighters is obviously very different from that of the Snipe to which we have hitherto been accustomed. And the Hawker Heron made a capital show.

The Bugle, on which Sq. Ldr. Longton displayed his ability to "stunt" a heavy twin-engine machine, looked—and one gathers is—a distinctly faster and more manœuvrable machine than her predecessors. In the other classes however it would need a somewhat vivid imagination to discover at the Display any notable difference between the performance of the best of the War relics, and of the new types which are now displacing them.

Policy and Progress.

It is now a good many years since one of the most successful of British aircraft constructors present as a guest at a dinner of one of the R.A.F. Establishments warned his hearers that if they expected that the new types of machines which they were to be called upon to test would prove to be either distinctly superior in performance, or more pleasant to handle, they were likely to be grievously disappointed. For the official design policy then and now in force called for machines which though still using the engines available at the end of the war, were required to carry increasingly heavier loads and an increasingly intricate equipment. Under the circumstances machines could not be expected to improve in performance or in docility of behaviour, and it was likely to take the designer all his time to keep up to the war-time standard of performance.

This prophecy has in the main been fulfilled. The new machines with which the R.A.F. is now to some considerable extent equipped are not—one or two exceptions apart—appreciably superior in performance to the best machines produced by the end of the war. They do, however, carry a very much more complete and complex equipment and the fact that they can carry this added load and maintain their performance speaks highly for the ability and enterprise of British aircraft designers.

Whether the policy which has led to this stagnation in performance is a sound one is quite another matter. What is pretty certainly an unsound policy, but which has nevertheless to some considerable extent been followed, is that by which designers have been called upon to add largely to the total load carried in a given class of machine, and have then had their products turned down because pilots naturally preferred to fly the older and less heavily loaded types of the same class. It is perfectly obvious that the R.A.F. cannot have both the maximum load capacity and the maximum performance at one and the same time. It is pretty obvious that the opinion of pilots generally is in favour of performance rather than of gadgetry, and although it would undoubtedly be unwise to pay too much attention to the pilot's natural preference for a machine possessing the maximum of reserve power and of manœuvrability, these qualities are of real importance.

It is however obviously unfair to the aircraft manufacturer to allow one section of the Air Ministry to overload aeroplanes in pursuance of one policy and then to condemn his products because the pilot prefers a less heavily loaded type of equal power.

New Types.

The new machine types exhibited at the Pageant, though few in number, were of considerable interest. The Gloucester Gamecock with the Bristol Jupiter engine gave a very impressive display of its climbing ability and is a beautiful job. It is, one believes, specifically meant for high altitude work and it is obviously not possible to judge it fairly by its behaviour at under 1,000 ft.

The Sopwith Hawker Heron, another machine of the same class, unfortunately split its airscrew in a preliminary flight. and was absent from the park when one was permitted to visit it. It is very definitely and obviously a Sopwith—and its performance looks to be a credit to its ancestry.

The same firm's Hedgehog, a three-seater reconnaissance machine also with the Bristol Jupiter engine, bears a close resemblance to the now well-known, but still undescribable Woodcock. Two features worth noting on this machine, which one may possibly mention without unduly tearing aside the veil of secrecy, are the very neat exhaust-collector ring and the long exhaust pipes fitted to the engine, and the mounting of the two synchronised Vickers guns.

The exhaust ring is very similar to that fitted as standard on the Bristol Lucifer, and surrounds the nose of the crankcase in such a way that it falls into the line of a very simple cowling scheme. It has a very noticeable silencing effect—and only those who have experienced it can realise how distressing and disturbing an hour or two behind a 400 h.p. engine with open exhausts can be.

The machine-gun mounting appears to be in the nature of a victory for the aircraft designer over the Air Ministry equipment expert. In a large number of recent British war machines the synchronised guns have been carried beside the pilot, and outside the fuselage, in the interests of accessibility. It has been held necessary that the pilot should have both the room and the light to change a complete lock in the air, if necessary, and a position for the breech of the gun just alongside the seat is apparently considered to be the best for this particular purpose. As there is usually not a great deal of room inside the fuselage, the gun has been fitted outside in a good many cases.

In the Hedgehog, the guns are mounted inside a fairly large-diameter body in the required position, and their muzzles brought out into grooves recessed in the side of the body, with their line of fire fairly close in to the crankcase and between pairs of cylinders of the Jupiter engine. Incidentally there seems no reason why the resistance should not further be reduced by sticking a piece of fabric over the gun-tunnels in the fuselage, and allowing the gun to shoot its own bullet exit through the fabric.

The other military occupant of the park was the new Short Springbok II of all-metal construction. This resembles the original Springbok, which has frequently been illustrated, except that in the new version the lower wing is attached to the body instead of being below it, the chord of the top wing is increased, and the petrol tanks are now fitted on the top wing. The most striking feature of the Springbok to the naked eye is the excellent body shape.

The remainder of the new machine park was occupied by the Bristol Brandon ambulance, the new Vickers Vanguard, with two Rolls-Royce Condor engines, and the D.H.54. The two latter machines are of purely civil types, and apparently the only reason for their presence is the fact that both of them are temporarily in the hands of the Air Ministry. The Vanguard is fitted for 22 passengers, a cabin boy and a buffet, in addition to a flying and navigating crew of two. A feature novel in British machines is the provision of petrol tanks in the bottom of the fuselage, where they may be dropped clear in the event of fire, or of a forced landing on bad ground. In the case of a machine which is intended for long voyages over really bad country, this arrangement for getting rid of petrol seems to be an eminently desirable one.

The Bristol Brandon and the D.H.54 have both been fairly fully described in this paper, and this is scarcely the place wherein to enlarge upon their qualities. Both created a very favourable impression on those of the public permitted to visit them.

This New Machine Park, incidentally, was the one ridiculous feature of the Display. Apparently any R.A.F. officer—and a good many other persons—could obtain a pass admitting an unlimited number of friends thereto. [Readers may remember that last year objections were raised because people who had a just reason for being admitted were refused admission. So the slight latitude allowed this year seems rather commendable.—Ed.] Certain R.A.F. officers, possibly selected for the job, had been provided with certificated descriptions of the machines therein. One at least of the possessors of this document was reading out certain of the contents of the park to the party under his charge, in full hearing of a number of newspaper correspondents, but showed himself completely unable to identify the individual types, except from information obtained from one of the said newspaper men.

The King's Cup Race.

The race for the King's Cup starts at Croydon on Friday and finishes there on Saturday. On Friday the machines will fly to Harrogate, Newcastle, Renfrew, Blackpool, Shotwick, Bristol, and back to Croydon. The following day they will make the same circuit in the reverse direction. Competitors must land at all the places named above except Blackpool, where they must fly reasonably near the Tower.

A direct line from Croydon to Harrogate goes right over Paddington Station, so that machines will probably fly low over the West End of London. To avoid this there should be a turning point at some place such as Epsom Grand Stand, or, by permission of His Majesty, at Windsor Castle.

The shed accommodation of the Aircraft Disposal Company Ltd. is open to all competitors, and the company will, so far as they are able, render any assistance required.

The following will be the order of starting. The pilots' names only are given :—

(1) Capt. G. De Havilland, (2) Mr. Alan J. Cobham, (3) Mr. J. H. James, (4) Mr. H. H. Perry, (5) Mr. C. D. Barnard, (6) Mr. Bert Hinkler, (7) The Master of Sempill, (8) Major H. Heming, (9) Mr. T. W. Campbell, (10) Mr. F. T. Courtney, (11) Flt. Lt. P. W. S. Bulman, (12) Sq. Ldr. W. H. Longton, (13) Mr. Bennett Baggs, (14) Mr. F. L. Barnard, (15) Flt. Lt. Jones.

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Mr. Alan J. Cobham's opinion of the 27/60 h.p. "CIRRUS" engine is given in the letter reproduced below :—



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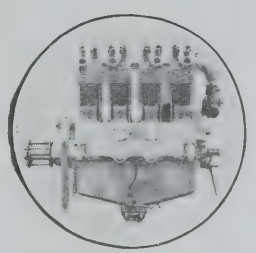
Dear Sirs,

The all essential to a pilots comfort and ease of mind, is absolute confidence in his engine.

When I flew the de Havilland MOTH with its 27-60 H.P. CIRRUS engine to Switzerland and back, over 1000 miles in one day, I had complete confidence that the CIRRUS engine would not fail me in any way.

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Yours very faithfully,
Alan J Cobham



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R.A.F. INTELLIGENCE.

The London Gazette.

June 23.

General Duties Branch.—Flt. Lt. C. F. Toogood is granted a perm. comn. in the rank stated (June 24).

The following Plt. Offs. are promoted to the rank of Flg. Off. (June 19) :—J. E. Gray-Hill Thomas, C. C. Edwards.

Flg. Off. L. W. Thres, D.F.C., is transferred to the Reserve, Class A (June 24). Flg. Off. H. E. Power (Lt., E. Surrey R.) relinquishes his temp. comn. on return to Army Duty (June 9).

The S.S. comns. of the following Plt. Offs. on probation are terminated on cessation of duty (June 24) :—C. M. Inglis, H. M. Bason, A. F. Satchwell.

Reserve of Air Force Officers.—The following are confirmed in rank :—Flg. Offs.—A. R. Turpin (May 27); A. M. Mackay (June 16); H. S. Eaton, E. C. Gordon, L. W. Norman, H. J. Price, T. Terrel, D.S.C., C. Thomas (June 23).

Plt. Offs.—C. S. Clarke, L. H. A. Fray, H. G. Harper, G. J. Holdcroft, J. Paterson, J. J. Burchett Rutter (June 23). Plt. Off. C. L. Atkinson is transferred from Class C to Class A (June 19); Plt. Off. J. H. Taylor is transferred from Class A to Class B (May 15); Flg. Off. L. F. Cubitt is transferred from Class A to Class C (June 23). The commn. of Flg. Off. on probation J. E. Sitch is terminated on cessation of duty (Feb. 15).

Appointments.

Week ending June 28.

General Duties Branch.—Flight Lieutenants R. Jope-Slade, D.S.C., to R.A.F. Depot on transfer to Home Estab., 27/5. P. C. Wood, to R.A.F. Base, Leuchars, 8/6. F. H. Coleman, to No. 30 Sqdn., Iraq, 3/6. A. W. Symington, M.C., to Inland Water Transport, Iraq, 14/5. M. Ballard, to No. 6 Armoured Car Coy., Iraq, 24/5. G. G. Dawson, to No. 24 Sqdn., Kenley, 6/7. G. F. Smylie, D.S.C., to R.A.F. Depot on transfer to Home Estab., 5/6. D. C. Balfour, to R.A.F. Depot on transfer to Home Estab., 22/5.

Flying Officers H. C. Black, to R.A.F. Depot, 23/6. J. R. Wolley, to No. 20 Sqdn., India, 22/3. (Hon. Flt. Lt.) E. L. O. Baddeley, to No. 5 Sqdn., India, 26/5. (Hon. Flt. Lt.) U. C. de Burgh, to R.A.F. Cadet College, Cranwell, 29/6. (Hon. Flt. Lt.) W. H. Vetch, to No. 28 Sqdn., India, 15/4. E. T. St. M. Brett, to No. 45 Sqdn., Iraq, 4/6. S. G. Williams, to Electrical and Wireless School, Flowerdown, 10/5. (Hon. Flt. Lt.) L. W. H. Phillips, to H.M.S. *Hermes*, 8/6. J. Messer-Bennetts, to R.A.F. Depot on transfer to Home Estab., 31/5. R. V. Bramwell-Davis, to Stores Depot, Iraq, 14/5. G. E. Newton, to No. 15 Sqdn., Martlesham Heath, 22/6. W. F. Warner, to No. 216 Sqdn., Egypt, 4/6. T. Fetherstonhaugh, to Aircraft Depot, India, instead of to No. 28 Sqdn. as previously notified, 1/5. F. G. Cator, to R.A.F. Depot on transfer to Home Estab., 30/5. A. H. D. Livock, to Aircraft Depot, India, instead of to No. 20 Sqdn. as previously notified, 1/5.

Pilot Officers A. H. Willetts, to R. A. F. Base, Calshot, 16/6. J. S. Branch and A. C. H. Sharp, to No. 4 Sqdn., S. Farnborough, 15/6. S. E. Bulloch, to No. 25 Sqdn., Hawkinge, 15/6. H. E. N. Burton and L. S. Birt, to No. 32 Sqdn., Kenley, 15/6. P. S. Blockey, to No. 56 Sqdn., Biggin Hill, 15/6. C. G. Crowden and W. T. Holmes, to No. 19 Sqdn., Duxford, 15/6. F. H. Farrow, to No. 13 Sqdn., Andover, 15/6. R. F. Francis, A. E. Haes, G. D. Middleton, W. E. Nicholls and A. G. Pickering, to R.A.F. Base, Calshot, 16/6. C. A. E. S. Kregor and G. A. Younger, to No. 29 Sqdn., Duxford, 15/6. E. H. Newman and A. T. S. Studdert, to No. 3 Sqdn., Upavon, 15/6. P. H. Nicholls and C. E. Galpin, to No. 17 Sqdn., Hawkinge, 15/6. C. H. Noble, to No. 2 Sqdn., Manston, 15/6. J. A. Mollison, to No. 20 Sqdn., India, 20/2. S. H. V. Harris, to No. 24 Sqdn., Kenley, 6/7.

Medical Branch.—Wing Commander A. S. Glynn, M.B., to H.Q., Cranwell, 28/6.

Flight Lieutenants T. R. S. Thompson, M.B., to H.Q., Coastal Area, 10/7. R. S. Topham, M.B., D.P.H., D.M.R.E., to R.A.F. Depot, 13/7. P. C. Livingtone, D.P.H., D.O.M. and S.B.A., to H.Q., Inland Area, 26/6. J. A. Perdrau, M.D., to No. 30 Sqdn., Spittlegate, 16/6.

Flying Officers (Dental) F. F. Anslow, to No. 10 Group H.Q., Lee-on-Solent, 24/6. P. D. Barling, M.B., to R.A.F. Depot, 22/6. H. W. D. Mackenzie, M.B., to C.F.S., Upavon, 22/6. B. Pollard, to No. 5 F.T.S., Sealand, 26/6.

Stores Branch.—Flight Lieutenant R. Adams, to The Packing Depot, Ascot, 15/6.

Flying Officer A. S. Berry, to Aircraft Depot, India, 4/3.

Accountant Branch.—Flight Lieutenant H. J. Gilbert, to R.A.F. Depot on transfer to Home Estab., 31/5.

The Directorate of Scientific Research

The Air Ministry announce that Mr. H. E. Wimperis, M.A., F.R.Ae.S., M.I.E.E., has been appointed to be Director of Scientific Research, and Mr. D. R. Pye, M.A., to be Deputy Director of Scientific Research in the Department of Supply and Research, The Air Ministry.

The decision to abolish the post of Director of Research at the Air Ministry, which originally dealt not only with research properly so called, but also with problems of practical design, and to substitute two departments, one dealing with "Scientific Research" and the other with Technical Development, was announced publicly in 1923 and took effect as from Apr. 1, 1924. Some difficulty was found however in securing the services of a suitable occupant for the post of Director of Scientific Research, and Mr. H. E. Wimperis, who, as head of the Air Ministry Laboratory, was already fairly busily occupied, was accordingly appointed as acting or provisional Director of this department pending a permanent appointment.

It may be presumed that with the regularisation of his position the Air Ministry Laboratory will in due course acquire a new head.

Mr. Wimperis, after a distinguished academic career, became a member of the Engineering Staff of the Crown Agents for the Colonies. On the outbreak of war he joined the R.N.A.S. and was responsible for the development of many instruments and appliances for aerial navigation and for bombing and other offensive operations which have proved to be of the greatest possible value, and some fair number of which are in regular use in the R.A.F.

Mr. Pye is at present a lecturer in Engineering at Trinity College, Cambridge. During the War he was a member of the R.F.C. and served as Experimental Officer at Orfordness and Martlesham Heath, and later as assistant to Col. Tizzard, then Deputy Controller of The Technical Department, Air Ministry. Since demobilisation in 1919 he has been engaged at Cambridge and in the course of his work there has carried out important research work bearing upon the internal combustion engine which is particularly applicable to the aero-engine.

A Fatal Accident.

The Air Ministry regrets to announce that as a result of an accident at Abu Sueir to a D.H.9a of No. 4 Flying Training School, Abu Sueir, on June 26, Plt. Off. Daniel Geoffrey Wilson, the pilot of the aircraft, and No. 330805 L-AC. Charles Willey Gamage were killed.

The Fleet Air Arm.

The following paragraph is taken from *The Times* of June 27 :—

The aircraft-carrier *Argus*, Capt. S. L. Willis, at present at Rosyth, is ordered to leave there so as to arrive at Torbay by the morning of July 7, to give a demonstration of flying for naval cadets. Wing Cdr. A. J. Miley, O.B.E., the senior R.A.F. officer in the *Argus*, was formerly a lieutenant, R.N., and when war broke out was one of the flying officers at Calshot R.N. Air Station. He was a flight-commander in the seaplane raid on Cuxhaven on Christmas Day, 1914.

The following paragraph is taken from *The Times* of June 29 :—

On the completion of her present alterations in Devonport Dockyard, the aircraft-carrier *Furious*, Capt. J. L. Pearson, C.M.G., is ordered to proceed to Portsmouth, her manning port, to recommission and to embark aircraft equipment. The date at present fixed for her completion is early September. The *Furious* will be one of the first ships to be affected by the new scheme of training of naval officers as pilots in the Fleet Air Arm, five lieutenants, R.N., having been appointed to her for naval duties and also for pilot duties in No. 404 and 443 Flights. During the time the *Furious* has been paid off into dockyard control her officers have been available for duty with the cruisers *Courageous* and *Glorious*, which are being converted into aircraft-carriers.

R.A.F. Allowance.

The Times of June 29 states :—

Under revised rates of pay, which have been approved for the Royal Air Force serving in India, all married officers over the age of 34 will receive higher rates than unmarried officers; free quarters or a cash allowance will be given; 100 per cent. increase will be made in the mess allowance; and a separation allowance when families cannot reside in an officers' station.

The Independent Force Dinner.

The Seventh Annual Re-Union Dinner of the Independent Force, R.A.F., was held at the Royal Air Force Club on June 23. Air Chief Marshal Sir Hugh Trenchard, Chief of the Air Staff, was in the Chair and after the usual loyal toasts proposed the only other toast of the evening, that of the Independent Force.

He congratulated Wing Commander Nicholl on the success of the Dinner and said that he hoped there would be still more members of the old Independent Force at future gatherings. He said that there had been so much talking going on lately that there was no need for him to say much. The Independent Force was the father of the R.A.F. and he asked those present to judge for themselves whether the son had done well. The R.A.F. appeared to be in a flourishing condition but those who were outside with the squadrons or even among the general public knew better what the R.A.F. was like than did he who spent his time sitting in an office.

Referring to the fact that sooner or later he would have to vacate that office Sir Hugh said that he had taken to gardening because the weeds could not argue. He then proposed the toast of the Independent Force and the rest of the evening was spent in conversation which included a good deal of argument.

Personally one regards Sir Hugh's affection for gardening as a happy omen. Even those with quite a mild knowledge of history will remember that a certain Roman citizen named Cincinnatus, after having been the saviour of the State, resigned his office in time of peace and returned to his farm where on the outbreak of another war he was taken from the handles of his plough by a deputation of the Roman Senate and brought back to save his country again in time of peril.

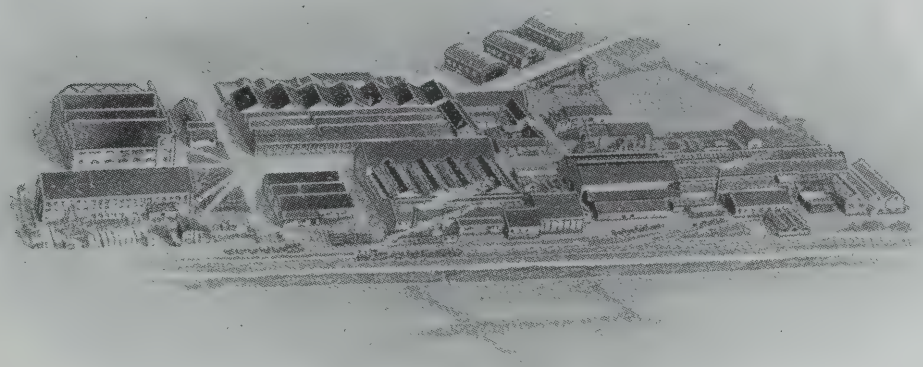
In the natural order of things Sir Hugh Trenchard must some day cease to hold his present office and as he will certainly never take to politics and is unlikely to leave this country in order to accept a colonial governorship—almost a sure sign that a fighting man has retired from fighting—he will probably be more easily reached in his own garden when he is wanted by the nation than he would be anywhere else.

Nevertheless everybody in the R.A.F. will hope that Sir

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Hugh will continue in his present office for a good many years to come, so that he himself may complete his scheme for the building of the R.A.F.

Life Insurance in the R.A.F.

In a Debate on the Adjournment of the House of Commons on June 24, Captain Guest said that owing to the number of flying accidents which had occurred during the past few years he thought some scheme of insurance ought to be devised for the dependants of flying officers who had suffered fatal casualties. The parachute seemed to be the best possible safeguard. He would like to know the result of any experiments made during the past few months.

With regard to the question of insurance, Captain Guest pointed out that from the age of 17 the airman runs a daily risk which is not very different from that run on active service. The present system gives a widow about £100 a year, but when it came to the question of dependants the power of the Ministry was discretionary. The argument that the high rate of pay should cover these risks was unsatisfactory because the risks were taken mainly by youths of the improvident age of from 17 to 28, and it was hard to expect them to put aside enough to ensure their lives, apart from the fact that the insurance rates for them were almost prohibitive. The ordinary premium was four times as high as that of a soldier or sailor.

Captain Guest thought the Air Ministry might make better terms for young officers than they could make for themselves. He suggested that the amount paid in pensions could be more economically employed in a scheme of insurance.

Rear-Admiral Sueter made a considerable speech about parachutes and engineers.

Sir Samuel Hoare pointed out that the actual number of fatal accidents was so far less than it was for the corresponding period last year and that the number of flying hours was greatly in excess of what it was a year ago. The same applied to non-fatal accidents.

In reply to Captain Guest's question, Sir Samuel said that his first act on returning to the Air Ministry was to give instructions for orders to be given for the Irvine parachute for the whole of the R.A.F. Every individual regularly engaged in flying duties would be supplied with an Irvine parachute and parachutes were to be available for each aircraft up to the full number of passengers carried, including the pilot.

Every possible precaution was being taken for ensuring the safety of the officers and men making experimental descents. No descents were made in bad weather. When descents were made near the sea the officer making the descent was provided with a life-belt and motor-boats in the neighbourhood were warned. At present all the parachutes were being made in America.

Sir Samuel Hoare expressed sympathy with Captain Guests's scheme of insurance and said that from the point of view of the Air Ministry there was always the risk that if the premium was too high and the danger of sudden death too great they might not get the officers and men needed for the Service. The Life Office Associations had asked for a number of statistics which were being supplied. He hoped that the result of these statistics would be to get a substantial lowering in the premium from Air Force personnel.

The R.A.F. Dinner Club.

The Annual Re-union Dinner of the Royal Air Force Dinner Club was held at the Connaught Rooms as usual on the eve of the R.A.F. Pageant on June 26th. Air Chief Marshal Sir Hugh Trenchard was in the Chair.

There was no speech-making but after the usual Royal toasts Sir Hugh exhorted those present to remember to instil into the rising generation of pilots what the R.A.F. has done in the past. He reminded them that prior to 1920 there had always been a Mad Mullah in Somaliland but that since that first little war conducted by the R.A.F. nobody had ever heard of a Mullah there. He also said that since that date there had been threats of several minor wars in various parts of the World which the R.A.F. had stopped by the expenditure of a few boxes of ammunition whereas without the R.A.F. there would have been an expeditionary force.

As to the growth of the R.A.F. he told us that we had only to look at the Air Force List to-day and compare it with the Air Force List of a few years ago, after the Peace reduction had taken place, to see how the R.A.F. was growing.

Referring to the Dinner Club itself he said that at present there were about 250 members and that he wanted to see it at its full authorised strength of 500 members. He wanted the existing members each to get a former officer of the R.A.F. to join the Dinner Club and so make the annual gathering a much bigger affair.

One hopes that Sir Hugh's remarks have gone home to his hearers and that possibly some readers of these notes may be reminded that the R.A.F. Dinner Club exists to bring together R.A.F. officers who served in the War 1914-18. The various squadron dinners are gradually dying out. This was only to be expected, because the existence of a squadron dinner depends entirely on the energy of one man, whether the secretary or the original promoter of the dinner. Consequently the R.A.F. Dinner Club offers to members of all units of the R.A.F. the opportunity of meeting friends who served in the War.

It is held on the eve of the R.A.F. Pageant because on that evening there are probably more R.A.F. officers in London than on any other one day in the year. That was the chief consideration in the minds of Group Capt. Christie, who originated the R.A.F. Dinner Club, and of the late Sq. Ldr. Vyvian Robeson, the first secretary, when they organised the first dinner.

The present secretary is Flt. Lt. E. B. Betts, D.S.C., D.F.C., The R.A.F. Dinner Club, Hillingdon House, Uxbridge, and one hopes that readers of these notes will communicate with him at once and will make a point of being present at next year's dinner.

Graeme Anderson.

Very many people will be grieved by the death of Henry Graeme Anderson who died suddenly on June 28. "Doc" Anderson, as he was called by nearly everybody who knew him, was playing tennis at Marlborough Road on Sunday, when he was seized with a heart attack and died almost immediately. He had been competing in the third round of the Veterans' Singles Lawn Tennis Tournament and had won the first set and was leading in the second when he collapsed and died shortly afterwards.

Graeme Anderson was only forty-one when he died but at the outbreak of War, nearly twelve years earlier, he was already a famous surgeon and had a fine practice in Harley Street. He threw up his practice as soon as War began and joined the Royal Navy as a Surgeon Lieutenant, in which capacity he served with the Naval Expeditionary Force during the brief but valuable defence of Antwerp. Then, or shortly afterwards, he joined the Naval Air Service and did much valuable work.

One first met him shortly after he had joined the R.N.A.S. and found that he was intensely interested in the frequency with which in minor aeroplane accidents pilots or passengers incurred a fractured astragulus, which means the breakage of a small bone in the ankle, which hardly ever occurs in ordinary life. There used to be a sort of standing joke that Anderson collected fractured astraguli, and several well-known pilots who had been told by ordinary doctors that they merely had broken ankles were found by Anderson to have suffered this uncommon damage. One believes that it was from that time that Anderson really devoted himself to studying the peculiar forms of breakage or illness to which aviators are liable as distinct from more ordinary human beings.

In 1917 Anderson was appointed to be Surgeon of the R.N.A.S. Flying School at Vendôme, right in the middle of France. The arrangement there was that he attended to the cases on the aerodrome but as there was no hospital at the aerodrome they were sent up to the hospital in the town where they were thrown on the more or less skill and care of French doctors and nurses. Fortunately most of the cases survived even French hospital treatment, and, as medical etiquette forbade Anderson to take part in the work in the hospital, the result was that one of the finest surgeons in England was doing work on the aerodrome which could have been done pretty nearly as well by a St. John's Ambulance man.

However, that all meant that Anderson was able to devote more time to studying the peculiarities, physical and phychological, of aviators and he acquired a vast stock of knowledge which helped him immensely at a later period. And much of the knowledge which he thus gained is contained in his book "The Medical and Surgical Aspects of Aviation."

After the outbreak of peace Anderson returned to rebuild his Harley Street practice and was appointed Consulting Surgeon to the Royal Air Force, in which capacity he operated on a very large number of R.A.F. officers, from Sir Hugh Trenchard downwards. And everyone who passed through his hands will always remember not merely his extraordinary skill as a surgeon but his kindliness and gentleness as a doctor.

Despite all his skill and learning Anderson was a sportsman in the widest sense of the term. He played games as a man should and he was keenly interested in every other form of sport. If a big boxing competition were being held Graeme Anderson was sure to be there. And he was to be met equally at the big race meetings and at places at which people live joyously out of working hours.

Anderson has done much good in his short life and his friends may take consolation to themselves in that if his life was short it was a gay one. To his young wife and infant daughter one offers sincere sympathy.—C. G. G.


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Fiction and Fact.

An imaginary war between imaginary Powers in the course of which apparently quite ordinary people go through the extraordinary process of having a solitary love affair each in the course of a lifetime is, one believes, the basis of a large proportion of the stories in the illustrated magazines. In the *London Magazine* for July the Editor, Mr. David Whitelaw, has boldly broken away from tradition and published a story by Mr. F. Britten Austin which will give his readers "furiously to think."

There may be a great many people who know far more than Mr. Austin does about the British position in the Far East. Unfortunately these authorities belong either to that section of the public which is incapable of expressing itself or else they hold positions or appointments which prevent them from spreading their knowledge. Mr. Austin, on the other hand, not only understands the situation in the Pacific, a subject which he has studied in all its phases for a number of years, but he can express himself either in a short story like this or in the more serious and equally well-informed articles which he has written in other journals.

The story in the *London Magazine* is called "In the China Sea" and the lesson it teaches about the perilous situation of British Forces in the Pacific owing to the policy of the Labour Government, is disguised in the form of an exciting yarn. It is a straightforward tale of Naval Warfare in the China Seas between Japan and her yellow allies on the one side and the United States and Great Britain on the other.

The author gives a vivid description of the helplessness of the British Fleet in action without a Base of any sort in the Far East. The Politician in the story finds sanctuary in a British flagship after the liner on which he is travelling has been torpedoed by a Japanese submarine. Although he has at one time been First Lord of the Admiralty and belongs to the political party which refused to sanction the building of a Naval Base at Singapore, he is horrified to find himself about to take part in an action against a superior force with the nearest Base at Malta, 10,000 miles away from the scene of the action.

One doubts whether there has ever been even a politician quite such a rabbit as Mr. Austin's politician, or whether Naval Officers are quite so garrulous as his Admiral, and there certainly never was such a funny aeroplane as the one in the illustration, even emanating from the R.A.E. But all the same it is a good tale, and it is amusing and educative without being irritating.—C. M. MCA.

The Red Army.

Though the following short article from *The Times* of May 27 has nothing to do with aviation it is of considerable importance to all those who will be concerned in the next war :—

Riga, May 25.

The report of the War Commissar, Frunze, to the Union of Socialist Soviet Republics Congress on the conditions of military service contained many interesting details.

Frunze stated that the Soviet had a constant annual supply of more than a million 21-year-old conscripts for the Red Army, of which about 850,000 were passed as physically fit. To enrol all of these would mean the maintenance of a standing army of about one and a-half million men, but such an army would, in addition to overburdening the Soviet finances, arouse suspicion abroad. The present Army cadres can absorb only about 270,000 annually, but Soviet Russia must have a strong army and must give military training to all available material.

The territorial formations, distinct from the standing Army, had already developed into a useful Army, and the compulsory pre-service training of youths was increasing rapidly. Frunze laid emphasis on the value of this preliminary training, which turned every youth into a partially-trained soldier. Soviet Russia has 4,500 training centres for giving preliminary instruction to youths in the latest developments of the science of war. Every youth immediately before he attains military age must undergo a two years' course of training at these centres, living at home except during the camping periods. It is considered necessary to increase the number of such training centres to 9,000, each to have a maximum radius of 17 miles. Last year the existing centres handled 642,000 youths.

Frunze dwelt on the importance of the special national formations in the Soviet's Eastern territories, particularly in Turkestan, Transcaucasia, and Siberia. He deplored the low rates of army pay for officers. The commanders of platoons, companies, battalions, regiments, and divisions received monthly 84, 106, 122, 170, and 220 shillings respectively, though France paid similar officers 114, 220, 304, 422, and 642 respectively; and Great Britain, 424, 686, 976, 1,228, and 2,040 shillings respectively. Soviet Russia, however, paid the rank and file 2s. 5d. a month, which was equal to the payment in most armies.

The so-called Scientific Military Societies held a joint conference on May 22 with the military delegates of the Union of Socialist Soviet Republics Congress to consider the best methods of organising military training in the centres where Frunze reported activity in this direction. It was decided to organise forthwith a Pan-Soviet Scientific Military Society, of which Frunze, Unschlicht, and Bubnoff would compose the Presidium and the Commander-in-Chief, Kameneff, and Voroshiloff, Egoroff, Tukhachevsky, Budenny, Zoff, and other prominent military and naval commanders would form the special military council. It is noteworthy that Trotsky is not included.

The Pacific War.

The following letter from a well-informed correspondent is of interest :—

"I have read with great interest your speculations re Tchang-Tso-Lin and his air force. Now I happen to have come across some choice Far Eastern gossip not so long ago which deals largely with this air force.

"Do you remember the attempt made by the French pilot Poulet, in 1921 or 22, to fly from Paris to the Far East in a twin-engined Caudron? Well, after the 'raid' had flivvered, Poulet made some exhibition flights in the Dutch East Indies, where he was later joined by another well known Caudron pilot, Chanteloup.

"Business was however pretty rotten, the more so as the Dutch Authorities were not particularly friendly, and the two pilots were 'eating of the enraged cow' (Paris slang



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for being dead broke) when suddenly a bright star appeared in their firmament in the shape of a mysterious Mr. Z. who bore a letter of recommendation from a Captain A., a countryman of the two pilots.

"Captain A. had large American affiliations. The previous year he had bought quite a batch of Curtiss H.16 flying boats and Jennies and had shipped them from the U.S. to Macao for the avowed purpose of starting an air transport enterprise.

"Well, Macao is an awful discreet place and A. duly started the air transport—opium air transport, that is—though this would not be mentioned in polite society. A. was quite successful, until one fine day one of his H.16s had a forced landing and the cat came out of the bag, for there was a nice assortment of opium on board and though most of it was jettisoned some of it was found—either by the British or by the Chinese, I am not certain which.

"After that A. found it expedient to sell his ships to the Canton government and made himself as inconspicuous as possible. Eventually, it seems, he took service as a flying instructor in Sun Yat Sen's air force. Now you know there has always been a close understanding between Sun Yat Sen and Tchang-Tso-Lin, and so there was nothing extraordinary in Mr. Z. appearing one day in Canton and casually asking A. whether he did not know a good flying instructor and some modern equipment that could be got hold of cheap.

"Now Mr. Z. (some say he is Belgian, some that he is a Levantine Jew) was the confidential purchasing agent for Tchang-Tso-Lin. And this is how Z. became the bearer of a letter to Poulet et Compagnie—who suddenly vanished from the Dutch East Indies as if a typhoon had sunk them.

"Next we find Poulet and Chanteloup as instructors to Tchang's air force, which at the time consisted of some Avros, Jennies and Caudrons—with headquarters at Moukden. There were also a few ex-Tzarist pilots who were very decorative on the ground and highly dangerous in the air—for other aircraft thereabouts.

"Well, the two Frenchmen, after displaying as much tact as firmness, put order into chaos; Caudron G.3s and Breguet 14s were ordered in France, paid for and delivered, and the training of Manchu pilots was undertaken with much energy and as a rule with success. (You see, Manchus are good horsemen as a rule.)

"This has been going on now without interruption for two or three years and as a result Tchang has to-day more Breguet 14s at his disposal than the Government of Indo-China. He has at least two dozen of these ships in flying order and it is understood he has now ordered from Breguet a batch of Type 17—which are Type 14 with a 400 h.p. Lorraine and have a performance almost as good as the Type 19.

"You may have further noted that when Pelletier Doisy flew to Tokyo he made quite a detour to pay his respects to Tchang-Tso-Lin at Moukden—and to his son Tchang-Hsue-Lian, who is chief of the Manchu Air Force.

"How many pilots—real ones—they have is hard to say—about 15-20 I was told. Some fairly good Russian mercenaries were also acquired—all Tzarist officers—and the decorative ones were either fired or put to less dangerous pursuits.

"Now I have given you this yarn for what it is worth as it was told me—not first hand, but I should say fifth or sixth. So I guess it has been greatly embellished en route from Moukden to Paris and I refuse to take any responsibility for it. But you can see for yourself that some parts of the story tally with other known things,—Poulet and Chanteloup *have* been in Moukden these last years, A. *has* carried opium by air, and almost every Tuchun (local Chieftain) has a few Breguets stored away—but Tchang makes them fly, and that's that."

The Ethics of Air War.

["Légitimité de la Guerre Aérienne." By André Henry-Coüannier. 252 pages. Price 12 francs, post free. Published by Per Orben, 4, Rue Tronchet, Paris.]

Those who are interested in the subject of the legality of air war, apart from the fact that whether air war is legitimate or not it will play possibly the biggest part in the coming race-war, will find much to interest them in a work entitled "Légitimité de la Guerre Aérienne," by M. André Henry-Coüannier, who sent out some considerable time ago a questionnaire to various people in most civilised countries asking for their opinions on the subject.

The countries from which opinions are published are :—France, Great Britain, including native Indian subjects, the United States, Germany, Italy, Spain, Salvador, Switzerland, Sweden, Portugal, Belgium, Denmark, Brazil, Austria, Holland, Czechoslovakia, Jugoslavia, Siam and Poland.

Naturally the most important opinion is that of M. Flandin, as a Minister of the French Republic and President of the Royal Aero Club of France, who says that according to his ideas centres of production of war material may be legitimately attacked, and he would only reserve from air bombardment such open towns as are inhabited by civil populations not concerned with the fabrication of war material. But M. Flandin would bar poison gases, and also what is called bacteriologic war.

Naturally one agrees with these opinions but the difficulty is to find any town which does not manufacture war material. For example, Cheltenham is primarily a health resort but it does make excellent "war-planes."

Anyhow it is very interesting to know what people with aeronautical and legal knowledge and also experience in the recent tribal disturbances think about air war of the future and so the book is well worth reading.

Air Mails.

The Postmaster-General announces that on and from Monday, June 29, letters, etc., may be posted for transmission by a new Air Mail serving Russia, Finland, Estonia, Lettonia (Latvia), Lithuania and Memel Territory. The Mail will be closed at the G.P.O., London, at 6.15 a.m. each week-day for conveyance by air to Berlin and thence by night train to Königsberg, in time to connect with air services next morning from Königsberg to (a) Memel, Riga, Reval and Helsingfors, (b) Smolensk and Moscow. The total time of transit from London to Helsingfors or Moscow should, given regular flights, not exceed 36 hours, and to the other places mentioned should be less. By ordinary Mail the time of transit from London to Helsingfors or Moscow is about 4½ days. The special fee payable (in addition to ordinary foreign postage) will be 8*d. per oz.* on letters, etc., for Russia, and 6*d. per oz.* on those for Finland and the East Baltic.

New Technical Literature.

The Aeronautical Research Committee.—*R. & M. No.* 933.—Forces and Moments (Including those due to Controls) on a Model Fairey N.4 Flying Boat Atalanta at various Angles of Yawl. By H. B. Irving and A. S. Batson. Price 1s. net.

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R. & M. No. 961.—The Variations of Engine Power with Height. By H. M. Garner and W. G. Jennings. Price 6d. net.

The Institution of Aeronautical Engineers.—Minutes of Proceedings No. 14; "The History and Evolution of the Avro Training Machine," by R. S. Parrot. Price 1s. 6d.



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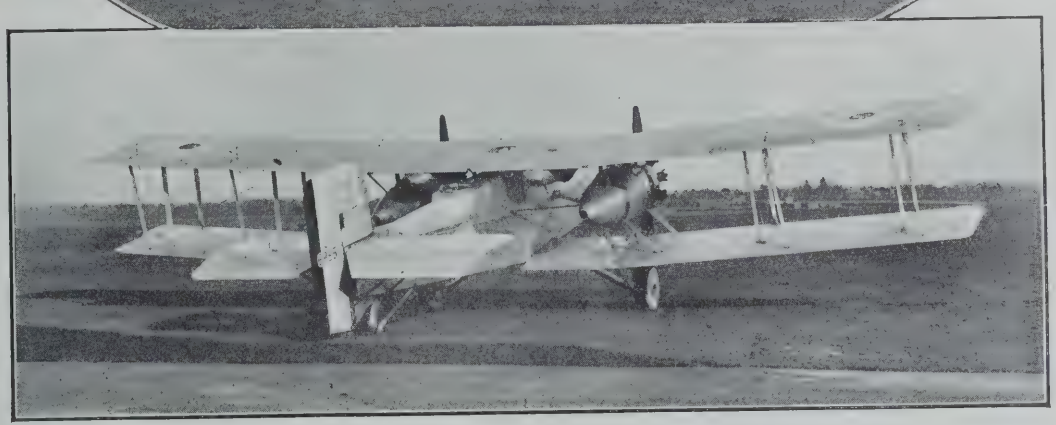


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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per day.—Monday, 26; Tuesday, 26; Wednesday, 23, Thursday, 27; Friday, 26; Saturday, 27; Sunday, 23.

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London—Paris—Zurich; London—Ostende—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 99, passengers 470, freight 20 tons.

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Total number of trips by British machines: 109, carrying 479 passengers. Foreign machines: 69, carrying 294 passengers.

Comparative Figures:

For week ending June 28:
Machines, 178; Passengers, 773; Crews, 219; Total personnel, 992.

Corresponding week, 1924:
Machines, 148; Passengers, 585; Crews, 183; Total personnel, 768.

Corresponding week, 1923:
Machines, 131; Passengers, 473; Crews, 218; Total personnel, 691.

Corresponding week, 1922:
Machines, 126; Passengers, 260; Crews, 173; Total personnel, 433.

Corresponding week, 1921:
Machines, 102; Passengers, 381; Crews, 123; Total personnel, 504.

Corresponding week, 1920:
Machines, 113; Passengers, 221: Crews, 134; Total personnel, 355.

Croydon Notes.

Passengers are rolling up in great force as the summer advances and there is no doubt that this year's figures will show an improvement on last year's, in spite of the scarcity of machines. The goods traffic has been very heavy, and in the last few days there has been a vast quantity of goods which are dutiable from to-day, July 1, on the reimposition of the McKenna Duties.

Last week-end, in order to satisfy oneself that the Editor's little air jaunt which he found so unsatisfactory was not the usual order of affairs, one flew, by invitation of Imperial Air ways Ltd. to Ostende and back. It is true that the journey is but a quarter of the distance to Berlin, but one travelled in machines which during the day covered about the same distance as for the Berlin trip.

The only criticism that one found to make was that the motor-car from London to Croydon left London, it seemed, unnecessarily early. The machine was due out at 3.30 p.m. and we left the Hotel Victoria at 2.15 p.m. Surely if all tickets etc., are made out in advance, 40 minutes should be ample time to get from the Victoria into the machine.

We left for Ostende sharp at 3.30 p.m. in D.H.34 G.EBBY piloted by Mr. F. L. Barnard, and there were three other passengers, making five in all. From Croydon right to the coast it was extremely bumpy, and had the coast been another ten miles away the worst would have happened. As it was the air was quite calm over the sea, and we met very few bumps, except under a thick, dark cloud over Dunkirk. We arrived on Ostende Aerodrome with the resilience of a brick, at 4.55, and within a quarter of an hour were in the centre of Ostende. The machine flew on to Cologne with the other three passengers.

The season at Ostende does not begin until July, and all the hotels were practically empty. The licensing laws of Belgium are exceedingly funny and are based on the principle that, though you cannot buy one bottle of whiskey, you may buy two.

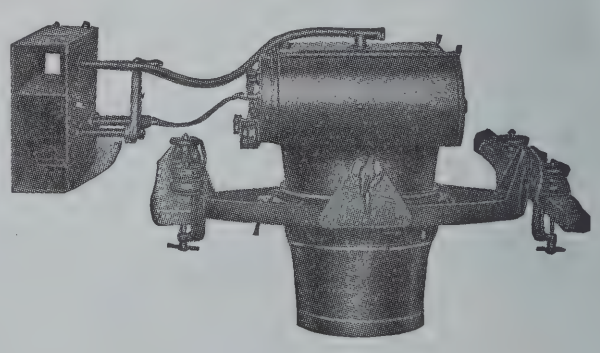
The following day there was a howling North wind blowing and one could hardly stand up on the sea front. At 2 p.m. one saw the Dover boat leave Ostende harbour with the waves breaking right over her, so one felt distinctly glad to be returning by air and not by sea.

We left Ostende a few minutes before six for the aerodrome and as we arrived, a D.H.50, piloted by Mr. Wolley Dod, arrived from Croydon. At 6 p.m. we left for Croydon. The part of the flight along the coast to Calais is usually insufferably dull, so as there was less wind low down and it was not so bumpy we flew as far as Dunkirk at a height of about 150 ft. The tide was out and we were flying into the wind so that we could have got down safely anywhere. We could see all the people on the sands and on the promenades of the various towns.

At Nieuport the old trench line could be seen plainly, and innumerable concrete "pill-boxes" in various stages of destruction. At Dunkirk the tide was right out, and there were miles and miles of dead, hard, flat sands, so we went down to 10 feet and flew the rest of the way to Calais at that height, where there was hardly a bump. Flying along like that is certainly a splendid way of seeing the country.

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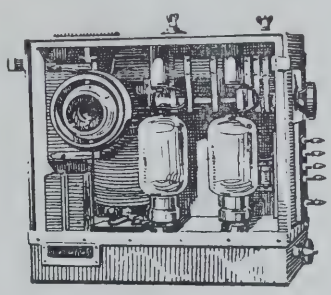
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At Calais we went up high to cross the Channel, and from there on it was rather bumpy. The rest of the flight was uneventful.

We reached Croydon at 7.40 p.m. and with less than five minutes' delay we embarked in a car and were in our flat in Westminster by 8.15 p.m., less than 2½ hours after leaving the hotel in Ostende.

One is reluctantly compelled to agree with the Editor over one thing and that is the fact that the D.H.50 is a delightful machine in which to fly. One always feels that if one is in agreement with the Editor, as when one is in agreement with the *Daily Mail* or the *Morning Post,* one is wrong somewhere. But nevertheless there it is.

The D.H.50 in which one came back had already flown from Croydon to Paris and back so that its total distance for the day was greater than the whole trip to Berlin, and one had it on its last lap. To be able to get from Central Ostende to Central London in 2½ hours strikes one as being real commercial aviation.

No more room is left for notes on Croydon.—G. D.

Seine to Thames.

Living in that part of London where Fighting Scouts are referred to as "almost as handy as polo-ponies," one was passing over Hammersmith Bridge at 09.30 hours on Tuesday morning and hearing the cheerful sound of aircraft one whipped one's V.P.K. out of one's pocket and rushed wildly down the tow-path just in time to see a Shreck amphibian come out of the haze, and, after two neat turns, make a perfect landing on the river just opposite Pratt's Wharf a couple of hundred yards from Hammersmith Bridge.

There is practically no traffic on the river at that hour of the morning and any amount of room for manœuvring in any direction of wind. One can only wonder why it has not been done before.

Having read the *Morning Post's* discourse on "Giant Amphibians for the London-Cairo Service," one was prepared for a machine with a span about equal to that of Hammersmith Bridge, instead of what was actually an ordinary little French seaplane of the F.B.A. type with a 300 h.p. Suisa engine—or the like.

The machine was flown from the Seine by M. Bajac, of the Air Union, and the trip was an experiment which is hoped to be the forerunner of a permanent service from the Seine to the Thames.

According to the *Morning Post* a number of these "monster amphibians" are under construction at the Shreck works at Argenteuil, and will soon be ready for the contemplated service.—C. M. MCA.

For the King's Cup Race.

Of the 15 machines entered for the King's Cup Race it is interesting to know that 13 have been doped with Titanine and 12 will run on Shell Petrol.

Incidentally all machines in the R.A.F. Display which filled up at Hendon used Shell Spirit.

PERSONAL NOTICES.

DEATHS.

GAMAGE.—On June 26, at Abu Sueir, Egypt, as the result of a flying accident, L.-AC. Charles Willey Gamage, R.A.F.

GRAEME ANDERSON.—On June 28, Dr. Henry Graeme Anderson, M.B.E., M.B., Ch.B., F.R.C.S., Consulting Surgeon to the Royal Air Force.

(The funeral will take place at Kensal Green Cemetery at mid-day and a funeral service will be held at St. Columba's Church, Pont Street, S.W., at 11.00 hours on Thursday, July 2.)

WILSON.—On June 26, at Abu Sueir, Egypt, as the result of a flying accident, Daniel Geoffrey Wilson, Plt. Off., No. 4 F.T.S., R.A.F.

Mr. Wilson was gazetted into the R.A.F. in July, 1924, and posted direct to Abu Sueir.

FORTHCOMING MARRIAGES.

DIXON—HIRSCH.—The engagement is announced between Mr. Charles H. Dixon, M.C., D.F.C., eldest son of Mr. and Mrs. W. H. Dixon, Hillfield, Sawbridgeworth, Herts, and Vera, only daughter of Mr. and Mrs. O. Hirsch, 15, Lymington Road, N.W.6.

HUGHES—STUBINGTON.—The engagement is announced between John Sydney Hughes (late R.A.F.) and Henrietta Aline Stubington, youngest daughter of the late Mrs. H. T. Stubington, The Priory, Westward Ho.

RUSSELL—PATTINSON.—The marriage between G. W. R. Russell, R.A.F., elder son of Mr. J. J. Russell, High Sheriff of Co. Louth, and Mrs. Russell, of Ballygasson House, Dunleer, and Priorland House, Dundalk, and Catherine Mary, only daughter of Alderman Robert Pattinson, J.P., of Southfields, Ruskington, will take place at Ruskington on July 23.

WHELAN—WREY.—The marriage arranged between Mr. Robert Darley Whelan, R.A.F., and Miss Barbara Wrey will take place on Aug. 12.

BIRTHS.

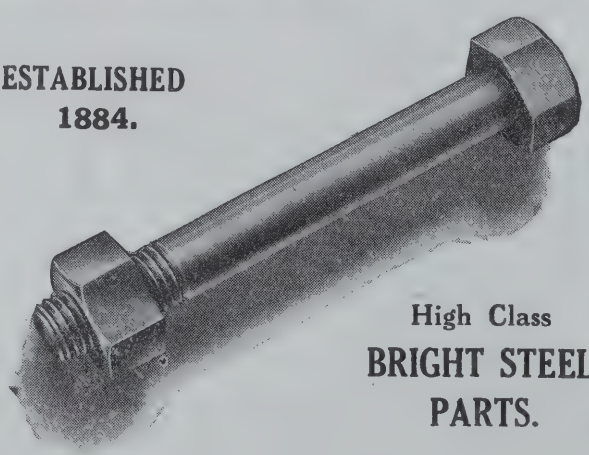
KNOCKER.—On June 16, at Torrington, Lincoln, to Cynthia Mary, wife of G. W. Knocker, R.A.F.—a daughter.

SAMSON.—On June 19, at 121, Ashley Gardens, S.W., the wife of Air Commodore C. R. Samson, C.M.G., D.S.O., R.A.F., of a son (prematurely).

TURNER.—On June 22, at Sheen Gate House, East Sheen, to Nora, wife of Flt. Lt. E. F. Turner, R.A.F.—a son.

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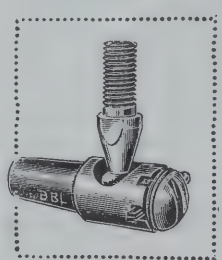
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INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. Gordon Glover

Vol. XXIX. No. 2. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

THE START FOR THE KING'S CUP.



DE HAVILLAND LEADS:—Captain Geoffrey de Havilland (left) and Mr. Alan Cobham (right) on D.H. 60s (Moths) with A.D.C. Cirrus engines, starting at 06.00 hrs. on July 3, in the race for the King's Cup.

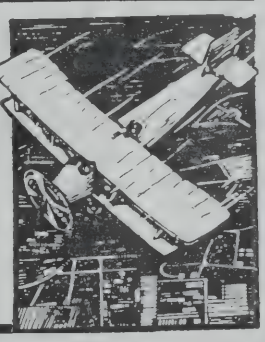


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ON THE KING'S CUP RACE.

There are those who might argue from the lamentable beginning of the King's Cup Race on Friday, July 3, that the aeroplane is an unpractical vehicle because it is not yet weather-proof. Certainly Fate was not kind in obstructing the race with the one meteorological phenomenon which does stop flying, that is fog. Aeroplanes will fly cheerfully in winds which stop cross-Channel steamers, and the sort of wind which stops a yacht race is merely a breeze to an aeroplane. Rain matters very little and snow can generally be circumnavigated. But fog is a hopeless impediment to any aircraft which is not fitted with directional wireless and multitudinous engines.

Setting aside the question of wind one doubts very much whether any seaside town would have attempted to hold a regatta in the fog which prevailed on the Southern portions of the King's Cup Race on Friday. Even at Croydon itself, where the weather was considered good enough for the machines to start in it, competitors were out of sight in the haze in anything between 40 and 50 seconds from the giving of the signal.

Still it was something to the credit of British Aviation that anybody started at all in such weather when one considers the apparent reluctance of anybody in England to enter an aeroplane for the race even on the supposition that it would be started and flown in perfect weather. When one compares the entry of 15 aeroplanes out of the whole British Empire for a Cup given by His Majesty with the entry in war-stricken Germany of 96 aeroplanes for prizes given by mere newspapers and municipalities one begins to wonder whether the fact is that the Germans are better sportsmen or whether they merely have such extraordinary commercial vision that they see the financial advantage of spending on aviation at this moment every penny they can raise instead of adopting Mr. Asquith's motto of "Wait and see." What would the Germans produce in the way of entries if they had a Kaiserliche Cup for which to compete?

Anyhow considering that there are something over twenty firms directly concerned with the Aircraft Industry and several nearto-millionaires, or at any rate war-enriched persons, intimately connected with aircraft we certainly have no reason to feel proud of either our sportsmanship or our business acumen where aviation is concerned. We have more reason therefore to thank those individuals who did enter machines for the race. And all the pilots who started in spite of the weather on the first day deserve the highest praise not only for their skill and pertinacity but definitely for their gallantry, for it takes a very brave man to go through such weather in full knowledge of the danger which he is running.

The first day was a chapter of accidents beginning with the weather itself, which was a disaster. Sheer good fortune was responsible for the fact that there were no personal casualties, for even the most skilful of pilots cannot land haphazard in fog without a certain amount of good luck.

The race started punctually to time at 06.00 hrs. on Friday, July 3. At that hour there must have been fully fifty members of the general public in the enclosure at Croydon apart from perhaps 150 to 200 people connected with the Air Ministry or the Trade or directly concerned with the competing machines. This may be compared with something like 150,000 people who turned out to see the start at 04.00 hours of the Rundflug at Berlin.

However that is the English way and no doubt in time the British Public will take an interest in flying. Apparently the 50,000 or thereabout who paid at Hendon to see the R.A.F. Pageant were interested rather in war flying than in sporting or commercial flying.

Not having been oneself at Croydon on the Thursday the task of describing the preliminaries is now handed over to one Geoffrey Dorman, so that this narrative may form a consecutive story:—

BEFORE THE START.

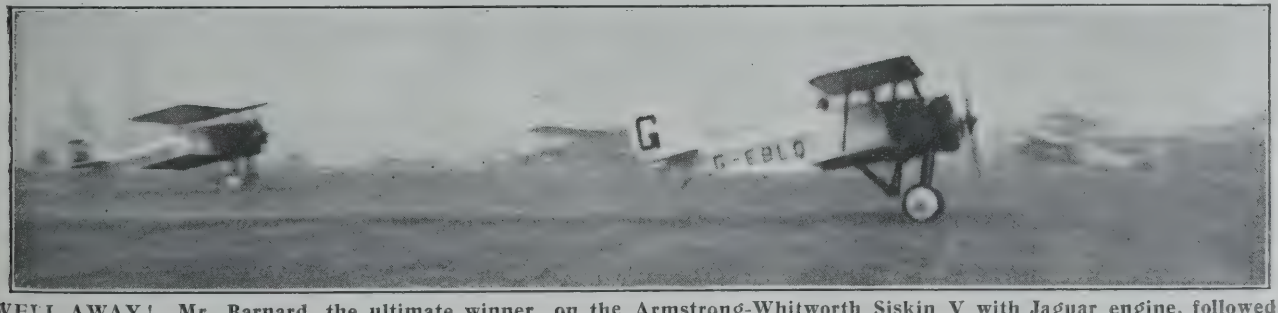
The preliminaries of the King's Cup Race began really on Wednesday morning, when the Armstrong-Whitworth-Siddeley brigade began to arrive. Mr. Courtney brought the Ajax down from Coventry in the morning, and in the afternoon Mr. F. L. Barnard and Mr. Baggs both arrived together. Flt. Lt. Jones on the Siskin IV flew down to Northolt and came over on the following day. Sq. Ldr. Longton made his first flight on the Martinsyde A.D.C.1 on Wednesday afternoon, and Mr. Perry was busy testing the Avro Airdisco. The following morning Col. the Master of Sempill arrived from Stag Lane whither Mr. Piercey had delivered Air Commodore Weir's D.H.51 from Renfrew.

There was not very much doing on Thursday morning, but Mr. Courtney was testing the Ajax. There was, however, plenty of activity on the compass swinging base where Mr. Jerry Shaw was swinging the compasses of Mr. Barnard's and Mr. Baggs' Siskins. Swinging compasses is one of Mr. Shaw's very numerous accomplishments in the aviation world, and how well he did the job can be seen by the course which Mr. Barnard flew and his statement that he relied absolutely on his compass. Mr. Barnard is himself one of the best compass pilots in the country.

One of the wonders of the meeting was undoubtedly the orange plus-fours worn by Mr. Bennett-Baggs. This suiting evidently came from the same stock as that sported by Mr. Harold Perrin. It is expected that Mr. Perrin, who is now more than ever on his mettle, will do something that will make Lympne a place fit only for heroes, and blind ones at that. One of the questions which arose on the question of Mr. Baggs' suiting was whether the King's Cup Race was devised especially for Mr. Baggs to wear his plus-fours or whether Mr. Baggs purchased his plus-fours especially to wear in the King's Cup Race.

While the compass-swinging operations were in progress a Vickers' Virginia loomed up on the horizon and sat down on the aerodrome, disgorging Sq. Ldr. Longton, who arrived thus from Worthy Down. Shortly after this another machine appeared on the scene which was seen to be Mr. Campbell's Bristol Bloodhound. There was no further excitement until the afternoon.

According to the rules of the race, any machine which had not arrived by 4 p.m. was liable to disqualification, and at 3.30 there were still seven machines to arrive. It will be remembered that at the King's Cup Race last year Mr. Cobham made a dramatic arrival at the last moment and dashed in just five minutes before disqualification time, and it was generally expected that he would perform the same



WELL AWAY!—Mr. Barnard, the ultimate winner, on the Armstrong-Whitworth Siskin V with Jaguar engine, followed by Mr. Bennett Baggs on a similar machine starting on Friday morning.



INTEREST IN AVIATION.—The whole of the Crowd present when Mr. Barnard landed on Friday.

stunt this year. Soon after 3.30 Mr. Bulman came in sight on the Hawker Woodcock, followed almost immediately by Mr. C. D. Barnard on the D.H.51a.

As each of these machines was driven across to the Aircraft Disposal Company's hangar Mr. Walker kept on getting more and more excited as all his available space was filling up. It was thought that he would shortly run out on to the aerodrome with a hatchet to look for the person who was directing all the machines over to him.

About a quarter to four Capt. de Havilland and Major Hemming arrived, one after the other, and then, sure enough, at 3.55 Mr. Cobham arrived in "the nick of time," as usual. There was much amusement while he spent the following half hour having landscape views and close-ups of himself taken by the Press photographers.

The only people who were missing by 4 p.m. were Mr. Hinkler on the Avro-Lynx and Mr. James on the A.N.E.C. It had been hoped that Mr. James, who was having a new engine fitted to his machine at Addlestone, would arrive by road but as his engine was not functioning satisfactorily he eventually decided not to come.

At five o'clock Mr. Hinkler arrived, and as no objections were raised so far as one could gather to his late arrival he was quite rightly not disqualified.

Course-Changing and Handicapping.

During the afternoon there had been numerous murmers as to the advisability of taking the course direct to Harrogate, thereby making the competitors pass over the West End of London. These objections had been lodged with the Royal Aero Club several times during the preceding fortnight, so why the course had not been changed before, thus allowing people to work out their course again in plenty of time, passes all comprehension.

At first it was decided to make a turning point at Staines Reservoir but unfortunately all the map shops were closed by this time and nobody was able to get new maps. However, Mr. Dick Dresser, Clerk of the Course, was sent round with a notice advising pilots that there would be a turning point at Staines Reservoir.

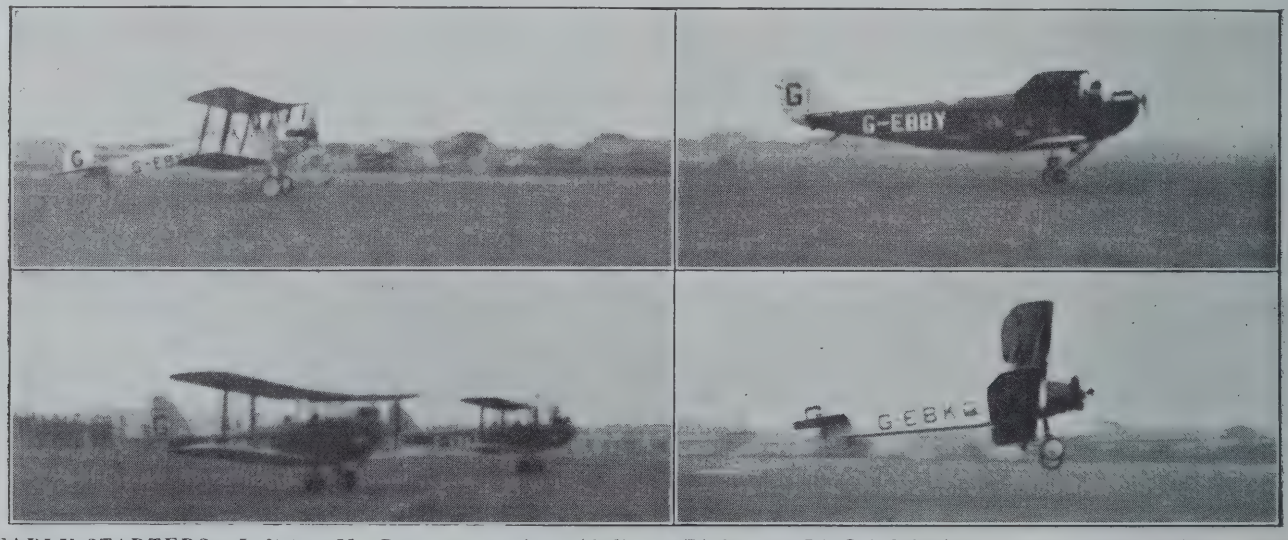
A few minutes later he came round with another revision stating that there would be a turning point at Harrow Church. Many people expected that he would constantly be coming round all the afternoon with various special editions such as Late Extras and Finals showing new turning points at such places as Wapping Stairs and Ramsgate Lighthouse.

Further trouble arose from a decision to alter certain handicaps from those issued. Now this seems to be all wrong somehow. Once the handicaps are published they should stand untouched and if any machines are found on examination not to conform to the specification sent to the handicappers by the entrant they should be disqualified.

Last year both the Siskins were handicapped beyond their capabilities. Although this was known before the start of the race the handicap was not changed and the machines were hopelessly out of it. This year an error was made somewhat under-handicapping a certain machine, owing to certain alterations to the machine not having been notified to the handicapper. The handicap for this machine was worked out again, but the pilot was not notified of the change until 8 a.m. the following morning, only a short time before he started in the race. One's personal opinion is that either the old handicap should have been allowed to stand or else the machine should have been disqualified altogether.

Mr. Goodman Crouch has a difficult enough job as it is, and it is not fair to expect him to work out new handicaps the evening before the race.

As it was, the fog on the following day threw all the handicaps all over the place, so it did not matter very much anyway. But it is quite time that any rules made are definitely adhered to. All the evening people were going about with gloomy expressions on their faces hunting for the handicapper, the secretary, and other officials, but fortunately there was no blood shed, and, as on the following morning



EARLY STARTERS.—Left top, Mr. Perry on the Avro Airdisco. Right top, Lt.-Col. Minchin on the D.H.34 (Napier) with Press Gang. Left lower, the two D.H. Moths (Cirrus). Right lower, Mr. Hinkler on the Avro 504N (Lynx).

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GETTING READY.—The two De Havilland Moths on the Starting Line.

every single competitor was thoroughly dissatisfied with his handicap, Mr. Crouch, who had worked far into the night, had evidently done his job pretty thoroughly without bias of any sort.—G. D.

THE START.

That being that one may now resume the editorial narrative.

The first machines away were the two de Havilland Moths with Cirrus A.D.C. engines, one piloted by Capt. Geoffrey de Havilland himself, who had also entered the machine for the race, and the other by Mr. Alan Cobham and entered by Sir Charles Wakefield of the Castrol firm, who may always be regarded as a certainty whenever financial support is wanted for a flying event, whether he wins or not. Both the Moths, each with a passenger, got away in very good style.

Following them went Mr. H. H. Perry on the Avro with the Airdisco 120 h.p. engine, entered by Lieut.-Col. Barrett Lennard, who is a director of the Aircraft Disposal Co., Ltd., and Imperial Airways Ltd. The machine is a 504K type Avro modified to take the Airdisco engine.

According to the programme the next pilot due to start was Mr. J. H. James on the A.N.E.C. monoplane entered by Major Jack Savage of the Skywriting Company. Apparently the machine was not ready to go, for it did not appear at Croydon.

Owing to the absence of the A.N.E.C. the next starter was Colonel the Master of Sempill on the D.H.51a, with the Airdisco 120 h.p. engine, entered by Air Commodore J. G. Weir. This was a particularly sporting entry because it represented the real private-owner class. This particular 51 had been bought some time before the race by Air Commodore Weir and he himself went in it as a passenger.

As a Brigadier-General, James Weir did very good work during the War for the R.F.C. and though he left the Service soon after the Armistice and returned to his business he has always taken a lively interest in flying and is one of the pillars of aviation in Scotland, besides being an Air Commodore in the R.A.F. Reserve. For a man in his position to risk his person as a passenger in an air race, even with so skilful a pilot as the Master of Sempill shows a very fine spirit of sportsmanship. But then "Jimmy" Weir, as his people in Glasgow call him, always has been a sportsman, as witness a certain little episode in his career some twelve years or so ago which led ultimately to his being escorted home by a brass band. One only wishes that there were a few more people of the stamp of Air Commodore Weir and the Master of Sempill concerned with flying.

Following them went Mr. C. D. Barnard, the well-known de Havilland pilot, on a D.H.51a, which is apparently the 51 with seats for two pasengers as well as the pilot. This machine had been entered by Steve Donoghue, the jockey, who habitually uses aeroplanes in the most reckless way (financially, that is), to fly him all over Europe from one race meeting to another. Mr. Barnard had with him as passengers Mrs. May and a mechanic.

Some humourist suggested that in view of Mr. Donoghue's recent mishap in Paris he ought to have entered the Bristol Ambulance for the race and have travelled in it himself, as he was debarred from fulfilling his original intention of going as passenger in the 51a. In spite of its extra passenger the little machine got away in very good style and although it had the same 120 h.p. Airdisco engine it was apparently judged by the handicappers to be fifteen minutes faster in the 1,600 miles than its stable companion.

Incidentally, something less than a minute per hundred miles looks as if Mr. Goodman Crouch and his aide, Mr. Dansey, had reduced handicapping rather to an exact science than to a fine art.

Just about here Lieut.-Col. Minchin, of Imperial Airways, started, *hors concours*, on the D.34, G-EBBY, with four or five passengers, to fly round the course with pressmen, as Imperial Airways were debarred by their regulations from entering or loaning a machine for racing. A rumour went round that he was carrying a cart-load of eagles to let loose in the Cheviots, where they would await Mr. Alan Cobham to remind him of the Pyrenees.

The next starter was Mr. Bert Hinkler on an Avro 504N with an Armstrong-Siddeley Lynx engine of 180 h.p., entered by Mr. A. V. Roe. This is the machine which presumably will some day replace the faithful 504K as the R.A.F.'s standard training machine. The oleo under-carriage gives it a curious giraffe-like appearance when it gets off the ground, but it is a fine flying machine.

The High-Powered and Speed Machines.

After Mr. Hinkler left there was a wait of nearly an hour before Major Hemming started, the gap representing the division between the low-powered machines and the high-powered.

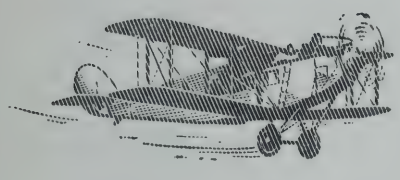
Major Hemming was flying the famous D.H.37, "Sylvia," with the Rolls-Royce Falcon engine of 275 h.p., entered by Mr. A. S. Butler, who is himself on the other side of the Atlantic, having for the moment forsaken flying to navigate his yacht in the wild wide sea. Major Hemming had with him Mr. F. Tymms, the Air Ministry navigation specialist, and a mechanic.

Then came the real speed machines, the next starter being Mr. T. W. Campbell, the Bristol test pilot, on a Bristol Bloodhound with a Jupiter 400 h.p. engine, entered by Sir Stanley White, Bart., the Managing Director of the Bristol Company,



SOME OF THE COMPETITORS.—From the top, Major Hemming, Mr. Tymms and mechanic. Mr. C. Barnard, Mrs. May and mechanic. Mr. Cobham and Mr. Elliott.

POWER!

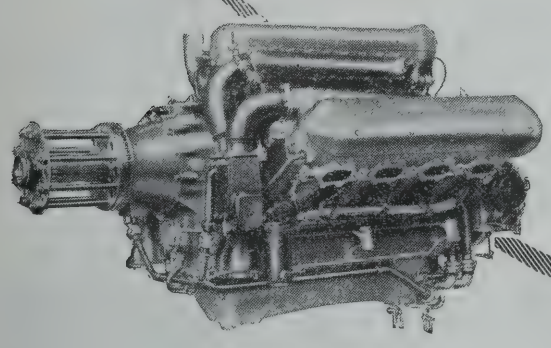


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THE WEST COUNTRY REPRESENTATIVE.—The Bristol Bloodhound (Jupiter) on test at Filton before starting for Croydon.

The Bloodhound is certainly a very handsome machine and as she bounced off the ground she not only gave a fine impression of speed but also showed herself to be a real flying machine like her ancestor the Bristol fighter, and not one of that class of aeroplanes which is merely pulled through the air.

The programme showed that the next starter should have been Mr. Frank Courtney on the Armstrong-Whitworth Ajax with the Armstrong-Siddeley Jaguar 395 h.p. engine, entered by Mr. J. D. Siddeley, the Managing Director of both these firms.

The Ajax, which seems to be the same as a similar machine with another name, came in for a lot of favourable comment. She is a very nice clean-looking job aerodynamically, and constructionally she is calculated to inspire confidence in her users. The fact that although she was carrying a passenger she was handicapped among the speed machines indicates what Mr. Goodman Crouch thought about it in the light of his peculiar knowledge. And the fact that the Siddeley stable was tipping her among their special friends to win the race in spite of the handicap shows what they thought about it. Between London and Newcastle Mr. Courtney gained five minutes on Mr. Barnard, which shows what the machine could have done but for sheer bad luck.

Unfortunately when the machine was being got ready to go up to the starting line one of the magnetos gave trouble and had to be replaced. The result was that instead of starting some 47 minutes in front of the scratch man Mr. Courtney actually started a quarter of an hour after him.

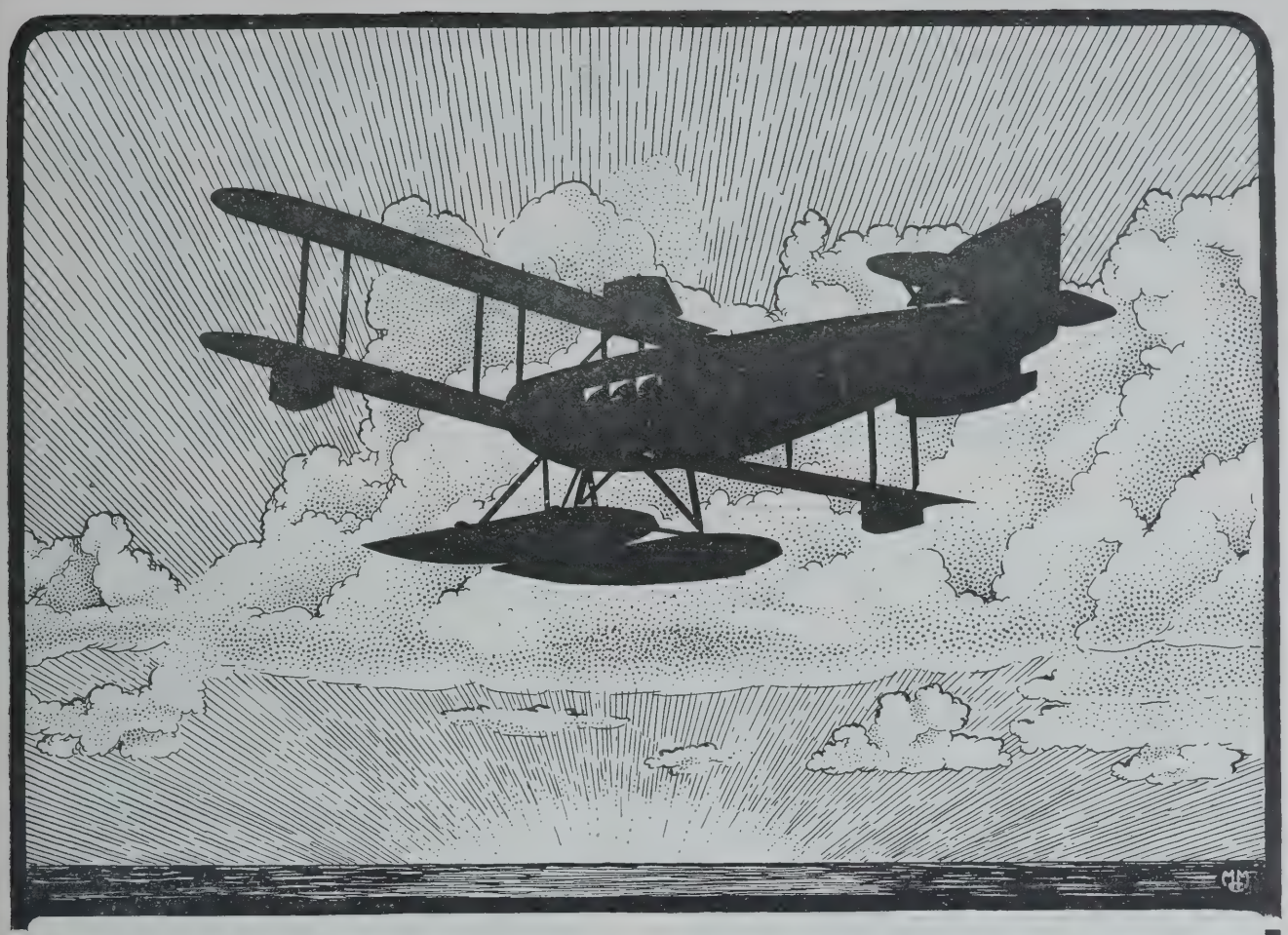
Therefore the next machine away was the Hawker Woodcock with the Jupiter 400 h.p. engine, piloted by Mr. P. W. S. Bulman and entered by Mr. T. O. M. Sopwith, the present Chairman of the S.B.A.C. The Woodcock is the most recent modification of the machine with the ingenious engine-cowling which appeared at the R.A.F. Pageant in 1924. And like all the Hawker-Sopwith products it looks a flying machine and behaves as such.

The next machine was of considerable interest, being the Martinsyde A.D.C.1, which is an F.4 Martinsyde modified by the Aircraft Disposal Company to take an Armstrong-Siddeley Jaguar. Regular readers of this paper will remember that on test this machine showed itself to be faster than the R.A.F.'s standard single-seater fighter.

The pilot was Sq. Ldr. W. H. Longton, and the machine



AN UNLUCKY COMPETITOR.—Mr. Bulman in the Hawker Woodcock (Bristol Jupiter) on the Starting Line.



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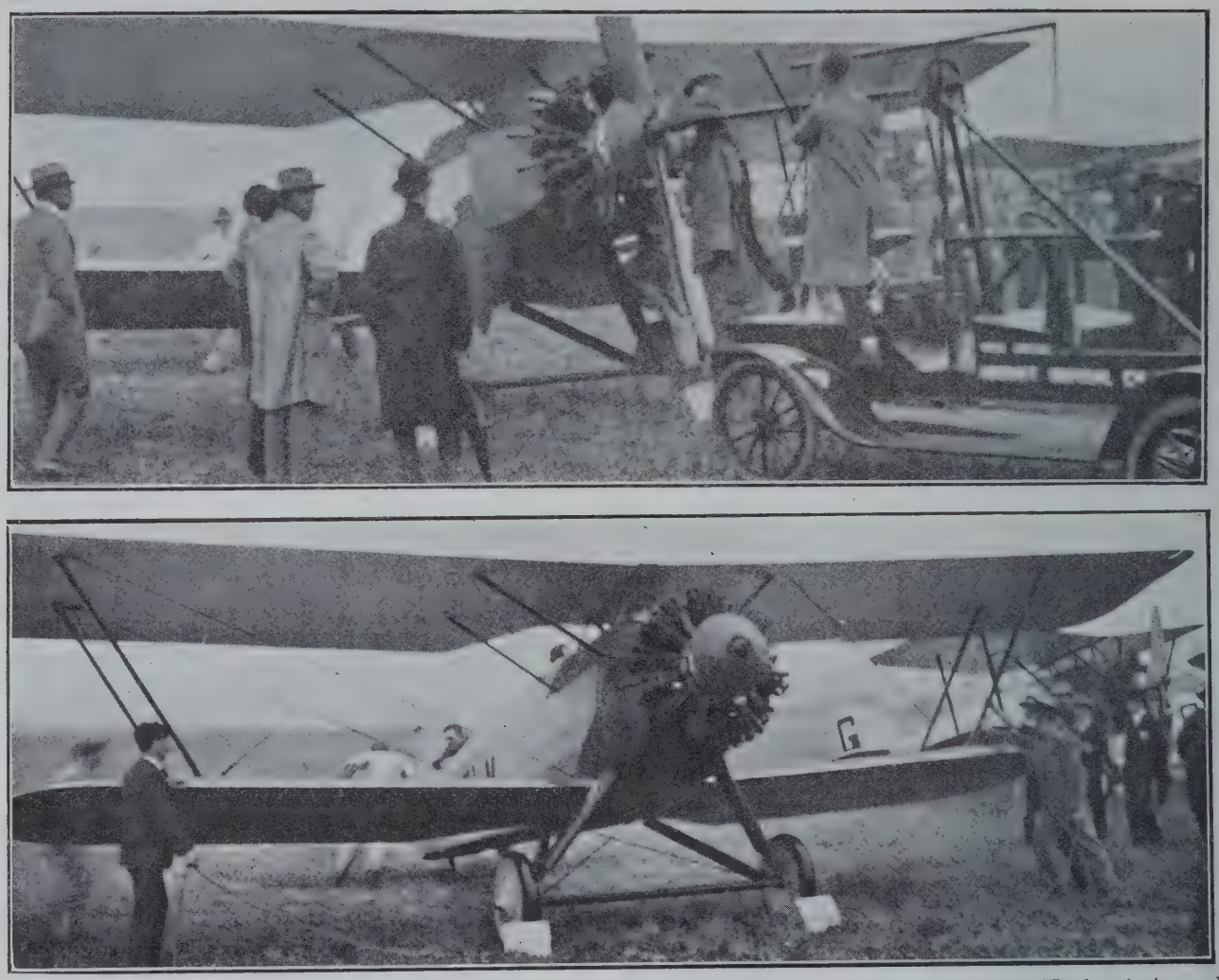
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AJAX DEFYING THE ARTIFICIAL LIGHTNING.—Mr. Courtney's machine being wound up by the Hucks starter and after the defective magneto had been replaced.

was entered by Lt.-Col. Darby, Managing Director of the A.D.C. Ltd. It got away in splendid style and gave distinct hopes of affording a genuine comparison between the last war time designs and the most modern peace time designs with similar engines.

The Siskin Trio.

The next starters, simultaneously, were Capt. J. L. Bennett-Baggs who is the chief test pilot at the Coventry R.A.F. Reserve Training Station, and Capt. F. L. Barnard, the well-known pilot of Imperial Airways, Ltd., who was formerly Commodore of the Instone Air Fleet. Each was mounted on a Siskin V with Armstrong-Siddeley Jaguar 395 h.p. engine. This is the type of machine recently built for the Roumanian Army, and is designed to be faster than the standard Siskin with which several R.A.F. squadrons are equipped, because the R.A.F. Siskins are designed as night flyers to have a high service ceiling and a low landing speed. One of them was entered by Major F. M. Green, the Armstrong-Whitworth-Siddeley chief designer, formerly of the Royal Aircraft Factory at Farnborough, and the other by Sir Eric Geddes, the Chairman of Imperial Airways, Ltd.

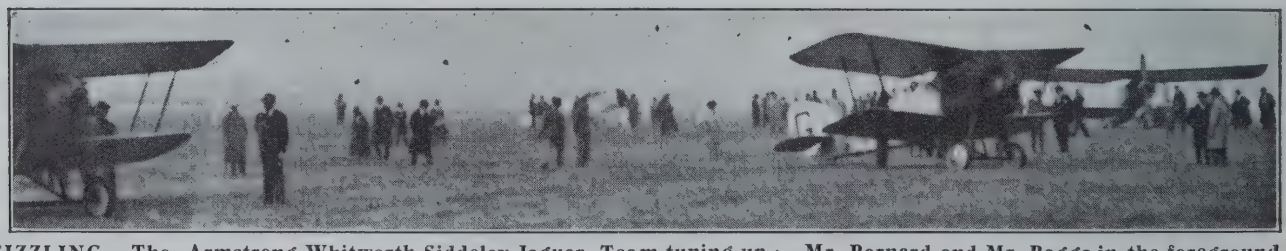
There is considerable satisfaction to be derived from the fact that Sir Eric Geddes saw fit to enter a machine for the King's Race. The entry gives definite proof that Sir Eric is interesting himself personally in flying and does not intend in future to be content to sit in an office and judge aviation solely from balance sheets and daily returns of figures. Incidentally he was present at Croydon on Thursday, Friday and Saturday.

The two machines got off together and were out of sight in something like 40 seconds, which gives some idea of the thickness of the mist. Just before they started, and while the last machine was also warming up its engine, somebody remarked, "Listen to all the little Siddeley Siskins sizzling!"—It is quite hard to say quickly without sounding like a soda syphon.

Last of all went Flt. Lt. H. W. G. Jones on a Siskin IV with an Armstrong-Siddeley Jaguar engine entered by Sir Glynn Hamilton West, who is Chairman of the Armstrong Companies. Mr. Jones, who during the race was gazetted a Squadron Leader, was the first man home at Gosport in the King's Cup Race last year, but he was then beaten by Mr. Cobham on handicap time. His machine looked outwardly like the other Siskins, barring that the wings are cut down considerably, and according to the handicapper it is some ten minutes faster in 1,600 miles.

News of the Departed.

After the departure of Mr. Jones people began to hunt for news of the earlier starters, and gradually during the day bits of information trickled in. All the earlier starters were forced to land by fog to the north of the Thames. The fog was not in fact a real fog at all, that is to say it was not caused by any inter-action between the ground and the atmosphere, it was simply what the North-country people call a "sea fret," blown in from the North Sea by an east wind, and apparently caused by a fight between an area of low pressure centred over Germany and an area of high pressure with its centre somewhere to the west of Ireland, the warm air of the high pressure area causing condensation



SIZZLING.—The Armstrong-Whitworth-Siddeley-Jaguar Team tuning-up:—Mr. Barnard and Mr. Baggs in the foreground, Mr. Jones in the centre background and Mr. Courtney on the right.

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England to Finland	1,100 miles
England to Constantinop'e	2,160 miles
England to Sweden (and back)	2,450 miles
England to South Africa	6,281 miles
England to Australia	11,500 miles

These flights were accomplished without any change of engines en route

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"Daily Telegraph," March 26th, 1925

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THE ULTIMATE WINNER.—Mr. F. L. Barnard on the Siskin V (Jaguar) waiting for the Starting Signal.

in contact with the cold air of the low pressure area. But the net result was as thick a fog as one usually meets in November or thereabouts.

The first news was that Capt. de Havilland and Mr. Cobham had landed close together near St. Albans and that Col. Sempill was somewhere in the same area. Apparently the all-pervading North Sea cloud was more efficacious than that which used to lie in wait for Mr. Cobham in Alps and Pyrenees and such places. Anyhow this one was too big for him to dodge.

Then we heard that Mr. Campbell was down near Luton, and that Mr. Perry was somewhere near him, and that Mr. Bulman had landed near Luton and crashed.

The Good Samaritaine.

Of this group there is a tale to be told. One pilot telephoned to his wife at Croydon that he was down, and suggested that she should bring lunch and wait till the fog cleared enough to let him get away again. He added that several other machines were down in the same area.

The good-hearted and enthusiastic lady, full of the spirit of hospitality, dashed off to Fortnum and Mason's with visions of a field full of aeroplanes wing-tip to wing-tip, accompanied by starving pilots and passengers. She procured enough of that famous firm's good things to satisfy the hunger of a large and epicurean beanfeast, and raced off in her car to relieve the distressed aviators. Only when she arrived and found only her husband and his passenger did she realise that the neighbouring distressed aviators were spread over a radius of about ten miles. However, the two most concerned did their best on the fare provided, and eventually arrived back at Croydon satisfied inwardly and notably over weight, though dissatisfied mentally with the result of their day's flying.

During the afternoon, Mr. Campbell, Col. Sempill, and Mr. Perry all returned to Croydon, and Capt. de Havilland and Mr. Cobham went back to Stag Lane.

A Near Thing.

Later we heard that Mr. Bulman, after dodging sundry trees and chimneys at Luton made for what looked like a reasonable field, but went into a hedge, hit a tree, spun round it, and broke the Woodcock rather badly, luckily without hurting himself. The smash was particularly hard luck on Mr. Sopwith as he has always been a thoroughly sporting supporter of air racing since its very early days in 1911, and he has had very little luck beyond winning the first of all Aerial Derbys as pilot of his own Bleriot. However, judging by the elongated face of one of our leading insurance experts one hopes that Mr. Sopwith will not have to bear the whole loss.

Apropos of this smash a story came in that a gentle shepherd tending his flock and having an early lunch from a tin can and a red handkerchief in the shelter of a hedge suddenly found himself projected violently into the middle of his field by the tail of Mr. Bulman's machine as it came through backwards after waltzing round its tree. And the story says that he was removed to hospital in an ambulance, unhurt but protesting loudly against the evils of aviation. He would seem to be the only casualty in the race.

More Mishaps.

Mr. C. D. Barnard, after various landings from Bedford onwards, struggled gamely through to Newcastle by about



GETTING INTO POSITION.—Mr. F. L. Barnard and his Siskin (Jaguar) being manœuvred onto the Starting Line.

KING'S CUP RACE

1st Capt. F. L. BARNARD,
Siskin V. Armstrong Siddeley Jaguar).
Entrant: The Rt. Hon. Sir Eric Geddes, G.C.B., G.B.E.

2nd Squad-Ldr. H. W. G. JONES, M.C.,
Siskin IV. (Armstrong-Siddeley Jaguar).
Entrant: Sir Glyn Hamilton West.

3rd Major H. HEMMING, M.C.,
D.H. 37 (Rolls-Royce Falcon Engine).
Entrant: Mr. A. S. Butler.

CONSOLATION RACE

1st Col. The Master of Sempill,
D.H. 51a (Airdisco Engine).
Entrant: Air Commodore J. G. Weir, C.M.G.

2nd Mr. Alan J. Cobham, D.H. 60 Moth (Cirrus Engine).
Entrant: Sir Charles Wakefield, Bart.

3rd Mr. B. Hinkler, Avro 504N. (Armstrong-Siddeley Lynx).
Entrant: Mr. A. V. Roe.

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GOING TO THE START.—The Scratch Man, Flt. Lt. Jones, taxying out.

half-past four, when it was too late to continue, and he came back to Croydon next day.

Sq. Ldr. Longton disappeared into thick air and nothing more was heard of him till late at night. Next day we heard that apparently somebody had left in his Jaguar engine the carburettor jets which had been used for some special tests for high speed, or climb, or something, with the result that his petrol consumption turned out to be about 35 gallons an hour.

Consequently, after getting through the bad fog round Luton and Bedford, trying first one valley and then another for an opening, he found himself out of petrol and managed to make a landing on Nottingham Race-course. There he spent three hours before he could get enough aviation spirit to fill his tanks.

He went on to Harrogate, but decided that it was useless to continue, as with such petrol consumption his tanks would not hold enough to take him over the longer stretches of the course even in perfect weather. So he spent the night at Harrogate and came back next day. The mistake is greatly to be regretted, for both the sakes of Mr. Longton and Col. Darby.

The Power of the Press.

During the afternoon news came in that the D.H.34, with the Press people on board, had crashed somewhere near Durham. Next day information was received that after getting through all the bad fog in the south and getting further than any of the competitors who started early in the race, Col. Minchin ran into a bad patch of sea fret near the coast and tried to make a landing in what looked like a reasonable field. In the mist it was impossible to see that the field had a pronounced downward slope in the direction of landing, and so the 34 continued its course till it crashed into a wood.

Fortunately nobody was hurt. And Mr. F. H. Jones of the Napier Company, who was one of the inmates of the machine, was so little disconcerted by the incident that he proceeded to take photographs of the crash as souvenirs.

The Dismal Duo.

The real tragedy of the day was the fate of Mr. Frank Courtney and Mr. Bennett Baggs. They were put out of the race by what seems to have been an amazing piece of mismanagement at the Newcastle Control.

The competitors had instructions to land as nearly as possible on one of the white crosses laid out on the Town Moor to indicate good landing ground. Mr. Courtney arrived, in spite of his delayed start, much less than an hour after Mr. Barnard. He passed over one white cross and landed perfectly well close to the second one, ran gently past it, and, just as his machine was coming to rest some twenty yards further on, he saw a large ditch in front of him.

The machine was barely moving, and he was afraid to open out his engine for fear of pulling himself into the ditch as there was just a hope that the machine would stop before reaching it. But luck was against him. The machine kept moving and gently trickled over the edge into the ditch and abolished its undercarriage.

His passenger, Mr. Hughes, likewise saw the ditch as the machine slowed to a standstill, and as it dropped over the edge remarked calmly: "Got it!" Mr. Courtney said afterwards that he was nearer to homicide at that moment than he has ever been in his life.

Very soon afterwards Mr Baggs, who had missed Mr. Barnard in the fog before reaching Harrogate, arrived at Newcastle and saw the white crosses. He also saw Mr. Courtney's machine apparently standing all square on the aerodrome. So, recognising Mr. Courtney's judgment in landing, he put his machine down so as to land as nearly as possible alongside him.

He also made a perfect landing, slid gently along, saw the



THE LAST STARTER.—The Scratch Man, Flt. Lt. Jones, on the Armstrong-Whitworth Siskin IV, with Armstrong-Siddeley Jaguar, 395 h.p., on the Starting Line.

D·H

RACE ROUND ENGLAND

SATURDAY, JULY 4th.

LONDON - BRISTOL - SHOTWICK
BLACKPOOL - HARROGATE - CROYDON

523 MILES.

This race was open to all entrants for the King's Cup Race who had the ill-fortune to be eliminated in the first circuit owing to fog which prevailed during the early hours of the event.

FIRST - - - D.H.51

Entered by Air Commodore J. G. Weir, C.M.G., and flown by Colonel The Master of Sempill.

AVERAGE SPEED - - 101.11 M.P.H.

SECOND - - D.H. "MOTH"

Entered by Sir Charles Wakefield, Bart., and flown by Mr. Alan J. Cobham.

AVERAGE SPEED - - 87.27 M.P.H.

FOURTH - D.H. "MOTH"

Entered by Capt. Geoffrey de Havilland, O.B.E., and flown by Capt. W. L. Hope.

AVERAGE SPEED - - 82.67 M.P.H.

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THE FINISH.—Mr. Barnard landing and dismounting.

ditch at the last moment, opened his engine to pull round and just got one wheel over the edge. So he, too, was put out of the race.

Civic Squabbles.

One gathers that the Town Moor is a licensed aerodrome under the Air Ministry, and therefore one suggests that some Government action should be taken in connection with this incident. Apparently, as Mr. Courtney put it, the Town Moor is the seat of civic squabbles. The Freemen of the city own the grazing and the Corporation owns the ground. When the Corporation wants to fill in the ditches, the graziers want them kept open. And when the Freemen want to fill the ditches the Corporation tells them not to interfere with its ground. Hence the crashes.

As it turned out the Armstrong-Whitworth and Armstrong-Siddeley firms cannot grumble about having the first two men home out of three. But both Mr. Courtney and Mr. Baggs and their machines and engines were going strong when they ran into the Newcastle man-trap, and they might even have altered the placing in the second day's race. And four places out of five machines to finish would have been a great show for the Armstrong-Whitworth-Siddeley combination.

The First Man Home.

Eventually Mr. Barnard arrived at Croydon a few seconds before seven o'clock and received a great reception from the indigenous inhabitants of Croydon and about forty or fifty members of the general public. One remarked to somebody that the crowd was not large, and received the reply: "Never mind! Both of it are frightfully enthusiastic!!"

Mr. Jones appeared just about an hour afterwards. Major Hemming who had done some skilful landings between Croydon and Harrogate, arrived an hour and a quarter later. And Mr. Hinkler came in about half an hour after that. Major Hemming was full of praise for the excellent navigation of Mr. Tymms who had taken him through the fog on a compass course with astonishing accuracy.

SATURDAY'S SHOW.

On Saturday morning the start was at the more reasonable hour of 07.30. Mr. Hinkler elected not to start as he obviously had no chance after his late arrival the previous evening. Mr. Jones was first away, followed by Major Hemming, with Mr. Barnard turned into the scratch man owing to his gain on his handicap the previous day.

There is no history of the second day's racing, because the three competitors got through without incident. This time they went round the course right-handed, Bristol being the first turning point and Harrogate the last.

Mr. Barnard arrived close on four o'clock, as the accompanying table shows. By that time there were perhaps 250 people in the public enclosure and about 20 cars in the park and 100 or 200 people wandering at will on the edges of the aerodrome and in the Customs enclosure.

Mr. Barnard was carried shoulder high to the vicinity of the Royal Aero Club official tent, where the Duke of Sutherland, as President of the Royal Aero Club, presented the King's Cup to Sir Eric Geddes, the entrant of the winning machine. He in turn presented it to Mr. Barnard, a gracious act on Sir Eric's part, though one wonders whether a subject is quite at liberty to hand over a gift which he has received from his Sovereign, even though he may have won it in open competition. However, even if in mediæval days such an action might have been regarded as *lèse majesté* there is no doubt that so good a supporter of sport as His Majesty King George would readily condone the offence.

Mr. Jones and Major Hemming both received hearty welcomes on their arrival. Mr. Jones is a very fine pilot, as his performances last year and this year both show, and some day he will win one of the big events—that is if we ever have any more in this country.

Major Hemming's success was especially popular because, although he is not so old as he looks when he is talking deep business affairs, he has done so much hard work for serious



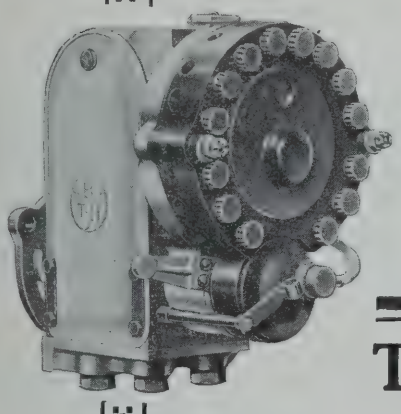
LEADING IN THE WINNER.—Mr. Barnard taxying to the enclosure after landing on Saturday.

B T-H

Aero Magnetos

for Reliability

B.T.H. Magnetos have gained universal esteem due to their extremely reliable operation under all conditions. The perfect design and workmanship incorporated in these magnetos have assisted in creating many world's records, in the air, on track and road, for aeroplanes, cars and motorcycles.



The D.H. "Moth," on which Mr. Alan J. Cobham made his wonderful flight to Zurich and back in less than 14 hours, was equipped with a "Cirrus" engine, fitted with a B.T.H. Magneto and impulse starter.

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AFTER THE RACE.—Left to right, The Duke of Sutherland, Sir Sefton Brancker, Mr. F. L. Barnard Sir Eric Geddes and Mr. J. D. Siddeley.

commercial aviation during the last few years and has made the name of the Aircraft Operating Company so well known all over the World as a concern which is able to offer flying as a serious commercial proposition that he is regarded very much more as a sound and steady business man than as a wild and wilful racing pilot.

He himself regards his journey of 800 miles a day merely as a proof that flying with adequate navigation is a sensible way of getting about the country. And of course the ever-faithful Sylvia with her Rolls-Royce Falcon engine behaved like a perfect little lady the whole time.

THE CROYDON STAKES.

Partly by way of entertaining the public, and partly by way of giving some consolation to the fog-bound pilots of Friday, the Royal Aero Club organised a 500-mile race for Saturday, which they called "The Croydon Stakes." Some feeble humorist, with reference to the chopping and changing of the course before the King's Cup Race started, and to the programme in general, suggested that it ought to have been called "The Croydon Chops."

It was also suggested that it might simply be called "The Air Race" to distinguish it from the previous day's landing competition.

The entrants were Mr. Alan Cobham on one of the Moths, Mr. Hope (*vice* Capt. de Havilland) on the other Moth, Mr. Perry on the Airdisco, Colonel Sempill and Air Commodore Weir on the D.H.51, and Mr. Hinkler on the Avro 504N. The course was Croydon-Bristol-Blackpool-Harrogate and back to London Town, otherwise the Croydon Aerodrome

The wind having changed from East to due North the times were particularly good. The competitors started before the wind had reached its full strength and came back from Harrogate with a stiff following breeze to help them.

The winner proved to be Colonel Sempill, much to the joy of everybody, for he has always been a thoroughly plucky pilot, though he has never had any luck in previous competitions. Also everybody was glad to see the one private owner in the two days' racing score, even for such small prize money. There could not have been a more popular win.

Mr. Alan Cobham was second, thus upholding his reputation for getting round a course with the minimum loss of time. He was only three minutes behind the winner and was actually passed somewhere in the purlieus of West London. Messrs. Hinkler, Perry and Hope were the "also rans."

Taking it all round, considering the appalling weather of the Friday, which more than justified the evil repute of that day, the competitions may be considered a success, or at any rate a triumph over adverse circumstances

Where so many good pilots were concerned it would be invidious to say that the best man won, but one can at any rate say that there would be difficulty in finding better men than those who did win. And the same remarks may be applied to machines and engines. Everybody concerned deserves to be heartily congratulated on having put up such a good show.

And now we can rest in peace for a few weeks till the August Bank Holiday Meeting takes place at Lympne—praying the while for fine weather on that occasion.—C. G. G.

GENERALITIES.

One of the outstanding lessons to be learned from the King's Cup Race and the 500-mile race seems to be that the time has now definitely arrived when machines of all types and speeds cannot be handicapped all in one group. Had the weather been suitable and all competitors had been able to get round the course there is little doubt that the fast machines would have scored a big advantage.

It has been suggested that the handicapper should work out several lots of handicaps according to the amount of wind that is blowing. This actually has been done on one



THE LAST MAN HOME.—Major Hemming on the D.H.60 (Sylvia) with Rolls-Royce Falcon engine, in the act of landing third and last in the King's Cup Race.



THE CROYDON STAKES.—Col. Sempill and Air Commodore Weir starting on the D.H.51 and Mr. Hinkler starting on the Avro 504N (Lynx engine).

PERFORMANCE IS PROOF

KING'S CUP AIR RACE

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for the **third** time

on

SHELL

WINNER : Capt. F. L. Barnard, flying a Siskin V. with 395 h.p. Armstrong-Siddeley "Jaguar" engine (entrant : The Right Hon. Sir Eric Geddes). The Second Competitor home, Squad.-Leader H. W. G. Jones, M.C., also used SHELL.

In the additional SPECIAL RACE held on July 4th, the winner —Colonel The Master of Sempill, flying a D.H. 51, 120 h.p. Airdisco engine—used SHELL.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



A SPORTING EFFORT.—Colonel The Master of Sempill (in the D.H.51) Air Commodore Weir, Mrs. Sempill (left) and Mrs. Weir (right) after their popular win on Saturday.

occasion, but it so happened that on that particular occasion two separate wind currents of entirely different strength and direction were blowing within 2,000 feet of the ground, which upset all calculations of this kind.

The excellent handicapping in the 500-mile race which enabled four of the machines to come in within half an hour of one another and the first two machines to be within three minutes of one another shows what can actually be done where the extreme speeds do not vary by more than 20 miles an hour.

Incidentally it is interesting to note the reason why Mr. Hope's machine was so far behind the other Moth. Many people put this down to the retarding effect of his Oxford, hereinafter always alluded to as Whitechapel, trousers. Though this may have been a contributory cause the main reason was the fact that it was discovered afterwards that all the magnets were missing from his compass which was consequently 28 deg. out.

To revert to the wind question, Mr. Goodman Crouch told one before the race that the difference in the handicap of a machine such as the Moth when handicapped from a Siskin IV. basis varies as much as 2½ hours between a calm and a wind of 35 miles an hour. When it is realised that a Moth would take about 17 hours to complete the course in a calm and such a machine as the Gloster II. might do it in six hours the handicapper's difficulty becomes obvious.

During the morning of the race the spectators were entertained by Mr. Youell, who was making practice flights on the Avro commercial machine. He was doing this in order to get this machine put on his "B" licence.

One of the most startling performances was put up by a Farman Goliath on Saturday afternoon. This machine went up for a test flight and started doing banked turns and stalls at a height of about 1,000 feet right over the top of the crowd. One hopes that M. Grosfils duly reprimanded the pilot who was responsible for this. If the pilot could have heard the remarks which were made he would not have been quite so pleased with himself.

Mrs. Sempill, who put up much good work in the race office manipulating a typewriter, was getting most anxious about the prolonged stay of her husband at St. Albans. She feared that he was trying to qualify residentially for an ecclesiastical position at St. Alban's Abbey.

Pilots' wives seemed altogether a ruthless race. Mrs. Longton was looking for the largest possible stick to deal with her husband on his return unless he could produce a satisfactory explanation why he got no further than Harrogate.

Much entertainment was derived on Friday during the morning from vivid reminiscences by the Secretary of the Aero Club of his ballooning feats in the dim distant past. Strong men wept and women clutched their children to their breasts.

The Press Steward was at one time standing up talking to a friend who was sitting on a chair. Someone wishing to know who he was said to Colonel Risk, "Who is that guy over there?" Said Colonel Risk, "Do you mean the guy sitting down?" "No," said the inquirer, "I mean the guy standing." "That's who it is," said Colonel Risk.

There was a poster on the aerodrome of a certain weekly paper bearing the inscription, "What is wrong with Air Racing by Alan J. Cobham?" The answer would seem only to be possible in Parliament and other privileged places.

One apologises to the town of Purley because the portion of it visible from the Aerodrome looked like a "set-piece" and was mistaken by many visitors for a cardboard village which they fondly hoped would be attacked by bombers and destroyed as per R.A.F. Pageant (as you were! Display).

Mr. F. L. Barnard's win is all the more creditable as he was suffering at the time from a swollen throat, unlike many star performers in all professions who suffer from swollen heads. During Thursday and throughout the race he had to carry round a bottle of throat mixture to take at frequent intervals. On the Saturday he was in such pain that he could not wear a collar. In addition to this fact Mr. Barnard has only just recovered from a serious operation which was performed in April.—G. D.

TIMES AND SPEEDS.

In the table appearing hereafter the times and speeds on each stage and for each day of all the machines which actually completed the course are given. It should be noted that the distances given in brackets below each control are the distances for the stage ending at that control, and similarly the bracketed speeds given below times of arrival are the speeds over the preceding stages, allowing for the compulsory stoppages.

It will be noted particularly in the case of Mr. Hinkler and Major Hemming that the speeds attained on the first stages on Friday show very clearly the effect of the fog which was encountered. As none of the other competitors covered more than two stages, and no less than five failed to complete even one stage, it has not been thought worth while to include the other entrants in the table. As a matter of



VALUED ASSISTANTS.—The contingent of R.A.F. Airmen from Kenley who manhandled the competing machines and generally made themselves useful during the meeting.

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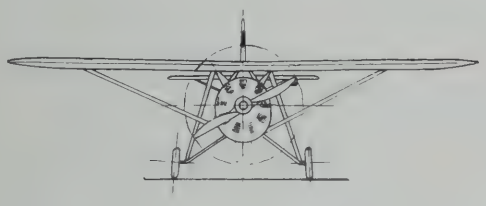
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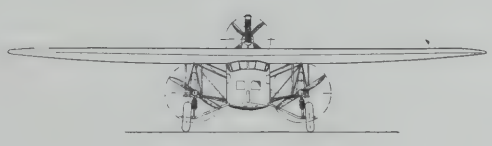
entirely built on BRITISH principles, to BRITISH material specifications and A.I.D. Inspection Rules.

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400 h.p. Bristol "Jupiter" Engine.

F. K. 33.



3 Siddeley "Puma" Engines.

A two-seater fighter, holder of 3 WORLD SPEED RECORDS carrying 2,100 lbs. military load, possessing hitherto unknown manœuvrability qualities.

Entirely of metal construction with exception of the wings.

Performing the following climb :

3,000 ft. in 2 mins. 10 secs.
10,000 ft. in 8 mins. 2 secs.
15,000 ft. in 15 mins. 10 secs.
19,500 ft. in 24 mins. 20 secs.

Ceiling : 26,000 ft.

Corrected for temperature and standard atmosphere.

In use or building under licence in the following countries :

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A commercial 12-seater specially designed for service on K.L.M. air-lines.

The only machine possessing :

A cabin space of 400 cubic feet.'

It also has :—

Dual control,

Oleo Landing Gear,

3 separate engines and

It is able to fly on any two engines.

FRIDAY.

Pilot and Machine.	Start.	Harrogate. (192m.)	Newcastle. (70 m.)	Renfrew. (124 m.)	Shotwick. (193 m.)	Bristol. (119 m.)	Croydon. (107 m.)	Overall Average Speed.
Hinkler Avro Lynx	7-21-21	11-58-56 (42 m.p.h.)	13-30-0 (67 m.p.h.)	13-37 41 (75 m.p.h.)	18 29-23 (114 m.p.h.	20-5-40 (107 m.p.h.)	21-43-19 (94 m.p.h.)	71 m.p.h.
Hemming D.H. 37	8-16-27	12-51-1 (41 m.p.h.	14-10-21 (98 m.p h.)	15-37-41 (130 m.p.h)	18-12-12 (123 m.p.h.)	19-38-34 (127 m.p.h.)	21-15-41 (96 m.p.h.)	81 m.p.h.
F. L. Barnard Siskin 5	9 48-0	11-17-28 129 m.p.h.)	12-30-0 (99 m.p.h.)	14-9-57 (106 m.p h.)	16-35-15 (136 m.p.h.)	17-47-40 (168 m.p.h.)	18-59-17 (154 m.p.h.)	130 m.p.h.
Jones Siskin 4	9 53 09	11-42-32 (105 m.p.h.)	12 50 0 111.5 m p.h.	15-1-19 (73.5 m.p.h.)	17-12-10 (163 m.p.h.)	18-35-53 (140 m.p.h.)	19-55-19 (124 m.p.h)	115 m.p.h.

SATURDAY.

Pilot and Machine.	Start.	Bristol (107 m.)	Shotwick (119 m.)	Renfrew (193 m.)	Newcastle. (124 m.)	Harrogate. (70 m.)	Croydon. (197 m.)	Overall Average Speed.
Barnard Siskin 5	7-41-31	8 25-14 147 m.p.h.)	9-47-0 (137 m.p.h.)	11-31-32 (156 m.p.h.)	13-21-46 (149 m.p.h.)	14-11-55 (161 m.p.h.)	16-0-29 (159 m.p.h.)	151 m.p.h.
Hemming D.H. 37	8-26-22	9-18-32 (123 m.p.h.	10-55 2 (107 m.p.h.	13-1-41 (120 m.p.h.)	15-8-42 (111 m.p.h.)	16-11-1 (130 m.p.h.)	18-10-13 (130 m p.h.)	120 m.p.h.
Jones Siskin 4	8-42-42	9-23-36 (156 m.p.h.)	10 45-22 (138 m.p h)	12-33-14 (148 m.p.h.)	14-23-25 (148 m p.h.)	15-19-34 (160 m.p.h.)	17-23-45 122 m.p.h.	141.5 m.p.h.

interest, however, the following average speeds are of interest as showing how appalling the weather conditions were: Mr. C. D. Barnard (D.H.51a) averaged 25 m.p.h. Croydon to Harrogate and 50 m.p.h. Harrogate to Newcastle; Mr. F. T. Courtney on the Armstrong-Siddeley Ajax made 73 m.p.h. to Harrogate and 111 from Harrogate to Newcastle; Sq. Ldr. Longton's average on the A.D.C. Martinsyde to Harrogate was 36.2 m.p.h.; Mr. Baggs on the Siskin V averaged 107 m.p.h. to Harrogate and 36.7 m.p.h. thence to Newcastle.

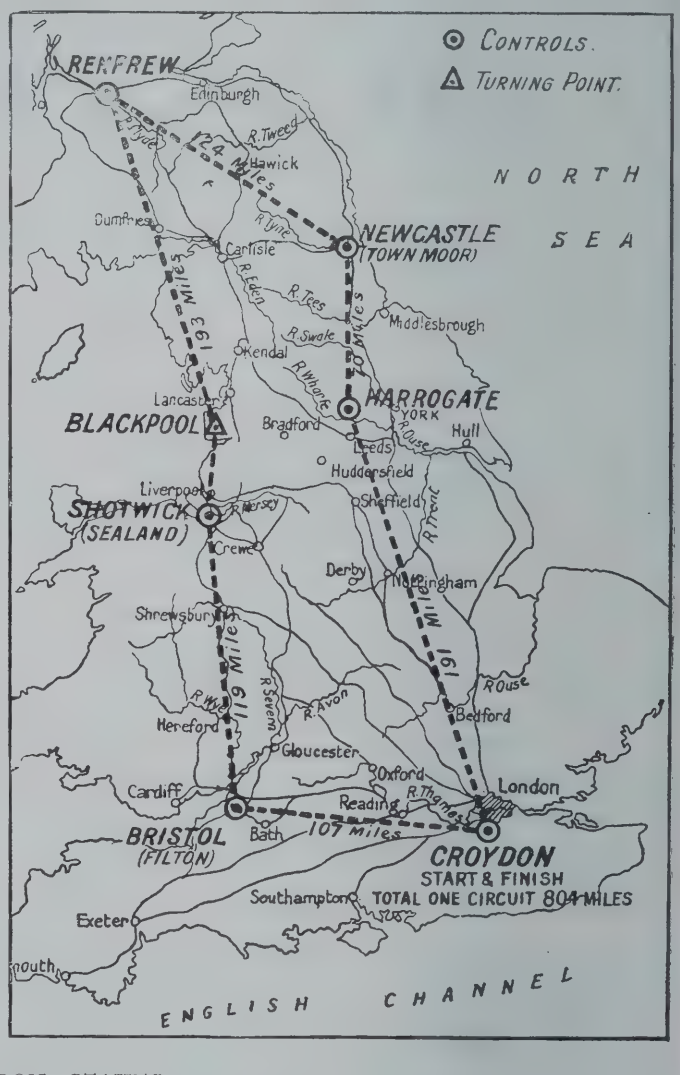
Mr. Courtney found on the starting line that one of his magnetos had failed completely, and was almost exactly one hour late in starting. Allowing for this, his actual speed between Croydon and Harrogate was approximately 119 m.p.m. as against 73.5 m.p.h. on the basis of his "official" time.

A comparison of these figures for the earlier starters with those of the three last machines to start shows how very effectively weather conditions conspired to nullify the work of the handicappers. All the earlier starters were forced down by fog a little north of London. By 9.30 however the weather had cleared sufficiently to allow the three last men to get through to Harrogate at over 100 m.p.h., while their unfortunate predecessors—naturally forced down in districts where the fog was most intense—were unable to get away from the ground. Then on the second stretch, from Harrogate to Newcastle, the late starters having arrived first at Harrogate were to some extent penalised by their earliness. Both Messrs. Barnard and Baggs flew the stretch at a considerably reduced speed, whereas Mr. Barnard, Mr. Hinkler and Major Hemming were faster on this than on the first stage.

The whole affair was extremely unfortunate, for there is very good reason to believe that the handicapping was really well done and that given reasonable weather a very exciting finish would have taken place.

Mr. Barnard's performance throughout the race can only be described as amazing. His lowest stage speed—Harrogate-Newcastle—was 99 m.p.h., and under the most appalling conditions he averaged 130 m.p.h. over the whole course. Curiously enough he made the highest stage average 168 m.p.h., Shotwick-Bristol) on the worst day.

A performance which deserves to rank with that of Mr. Barnard as an exhibition of consistent flying was that of Major Hemming, assisted by Mr. Tymms, on the D.H.37. Except for the first two stages on Friday in fog, and his return from Bristol in the dark, his speeds were astonishingly high and uniform, and his average of 120 m.p.h. for the whole of Saturday shows that he got as much out of his machine as the machine could give.—W. H. S.



THE CROYDON STAKES.

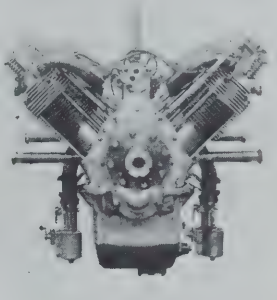
Pilot and Machine	Start	Bristol (107 m.)	Shotwick (119 m.)	Harrogate (105 m.)	Croydon 192 m.	Overall Average	Position
Cobham D.H. 60 (Moth)	10-0-0	11-15-0 (86 m.p.h.)	13-16-18 (78 m.p.h.)	14-59-23 (86 m.p.h.)	17-29-33 (96 m.p.h.)	87.5 m.p.h.	2nd.
Hope D.H. 60 (Moth)	10-0-0	11-25-0 (75.5 m.p.h.)	13-28-30 (76.5 m.p.h.)	15-13-5 (84.5 m.p.h.)	17-49-11 (92 m.p.h.)	83 m.p.h.	4th.
Perry Avro Airdisco	10-19-55	11-35-0 (86 m.p.h.)	13-34-13 (80 m.p.h.)	15-27-8 (77.2 m.p.h.)	17-53-49 (99 m.p.h.)	86.5 m.p.h.	5th.
Sempill D.H. 51	10-45-54	11-51-0 (98.5 m.p.h.)	13-32-12 (100 m.p.h.)	15-3-15 (89 m.p.h.)	17-26-11 (112 m.p.h.)	101 m.p.h.	1st.
Hinkler Avro Lynx	11-1-8	12-2-41 (103 m.p.h.)	13-52-12 (102.5 m.p.h.)	15-24-52 (100 m.p.h.)	17-34-16 (116 m.p.h.)	103 m.p.h.	3rd.

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"The Croydon Stakes"

A Handicap Race promoted by the Royal Aero Club.



120/140 h.p. "AIRDISCO" Engine.

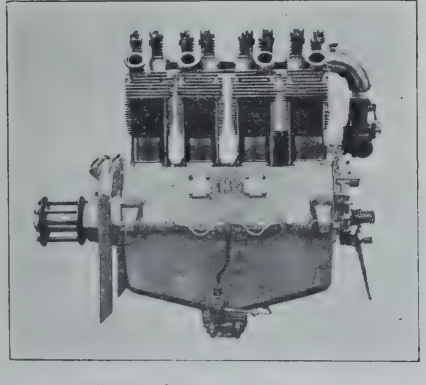
COURSE.—

523 miles in a circuit, CROYDON—BRISTOL—SHOTWICK—BLACKPOOL—HARROGATE—CROYDON.

— *RESULT.* —

	Pilot.	*Machine.*	*Engine.*
1st.	Col. The Master of Sempill.	D.H.51	120-140 h.p. "AIRDISCO."
2nd.	Mr. Alan J. Cobham.	D.H. "Moth."	27-60 h.p. "CIRRUS."
3rd.	Mr. B. Hinkler.	Avro 504N.	180 h.p. "LYNX."
4th.	Mr. W. L. Hope.	D.H. "Moth."	27-60 h.p. "CIRRUS."
5th.	Mr. H. H. Perry.	Avro, type 504K.	120-140 h.p. "AIRDISCO."

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R.A.F. INTELLIGENCE.

The London Gazette.

June 30.

General Duties Branch.—The following are granted perm. comns. in the ranks stated (July 1):—Flt. Lt.—B. R. Carter, A.F.C. Flg. Offs.—M. H. Ely, F. F. Inglis (Lt., Duke of Cornwall's L. Infy.), J. Marsden.

Plt. Off. J. C. Hill is promoted to the rank of Flg. Off. with effect from May 10, 1924, and with seniority of Nov. 10, 1923 (substituted for the notifications in *Gazettes* of Nov. 18, 1924, and Apr. 7 and 24, 1925); Plt. Off. on probation W. E. Symonds is confirmed in rank (May 26).

Wing Cdr. A. H. Wynn Elias Wynn, O.B.E., is placed on the retired list at his own request (July 1); Flt. Lt. H. J. Edgar is placed on the retired list at his own request (July 1).

The following Flg. Offs. are transferred to the Reserve, Class A:—A. L. Harris and G. C. Sclater (June 28); F. J. Brunton (June 30). Plt. Off. F. H. Farrow resigns his S.S. comn. (July 1).

Stores Branch.—Flt. Lt. H. W. Clarke is transferred to the Reserve, Class C (June 17) (substituted for the notification in *Gazette* of June 16).

Reserve of Air Force Officers.—The following are granted comns. on probation in Class A, General Duties Branch, in the ranks stated (June 30):—Flg. Off.—H. Lawson. Plt. Off.—A. Prescott. The following are confirmed in rank:—Flg. Off. P. Smallwood (June 11); Plt. Off. C. W. Sutcliffe (June 30). Flt. Lt. C. H. B. Thompson is transferred from Class D2 to Class D1 (June 25); Flg. Off. I. G. G. Simpson is transferred from Class A to Class C (June 13).

Memoranda.—Maj. A. C. H. MacLean, C.B.E., R. Scots Regt., is granted the rank of Col., R.A.F., on retirement from the Army (June 3); the permission granted to Lt. H. G. Owen to retain his rank is withdrawn on his enlistment in the T.A. (May 19); Flg. Off. H. H. Fell relinquishes his temp. comn. in the Electrical Serv. Works Coy. (May 1).

The Half-yearly Promotion List.

The R.A.F. half-yearly promotion list was published on July 4, and appears in the extract from *The London Gazette* dated July 3.

Air Ministry, July 3.

Royal Air Force.—The following are promoted with effect from July 1:—

General Duties Branch.

Air Commodores to be Air Vice-Marshals.—C. A. H. Longcroft, C.B., C.M.G., D.S.O., A.F.C., T. I. Webb-Bowen, C.B., C.M.G.

Group Captains to be Air Commodores.—L. F. Blandy, C.B., D.S.O. (Lt.-Col., Reserve List, R.E.), I. M. Bonham-Carter, C.B., O.B.E., F. V. Holt, C.M.G., D.S.O.

Wing Commanders to be Group Captains.—C. E. H. Rathborne, D.S.O., C. R. S. Bradley, O.B.E., C. T. Maclean, D.S.O., M.C.

Squadron Leaders to be Wing Commanders.—P. Babington, M.C., A.F.C., G. R. Macfarlane Reid, D.S.O., M.C., R. M. Hill, M.C., A.F.C., B. L. Huskisson, D.S.C., C. F. A. Portal, D.S.O., M.C., C. H. B. Blount, O.B.E., M.C., R. J. Mounsey, O.B.E., E. W. Norton, D.S.C., A. G. R. Garrod, M.C., D.F.C., C. W. H. Pulford, O.B.E., A.F.C., G. W. Williamson, O.B.E., M.C., G. G. H. Cooke, D.S.C., A.F.C., D. S. K. Crosbie, O.B.E., R. B. Maycock, O.B.E.

Flight Lieutenants to be Squadron Leaders.—A. H. Stradling, O.B.E., C. E. H. C. Macpherson, A. S. Maskell, B. E. Baker, D.S.O., M.C., A.F.C., F. H. Coleman, K. M. St. C. G. Leask, M.C., A. N. Benge, H. W. G. Jones, M.C., C. N. Lowe, M.C., D.F.C., R. H. M. S. Saundby, M.C., A.F.C., A. W. Mylne, J. K. Summers, M.C., E. L. Howard-Williams, M.C., D. F. Stevenson, D.S.O., M.C., F. R. Alford, M.C., G. E. Godsave, G. E. Livock, D.F.C., Hon. R. A. Cochrane, A.F.C., R. S. Booth, A.F.C., J. B. Cole-Hamilton, J. Noakes, A.F.C., M.M., J. K. Waugh, D.S.C., A. D. Pryor, R. A. de H. Haig, A.F.C., E. B. Rice, R. G. Gardner, D.S.C., W. R. D. Acland, D.F.C., A.F.C., F. J. Vincent, D.F.C., F. Fowler, D.S.C., A.F.C., R. Halley, D.F.C., A.F.C., A. G. Weir, W. A. Coryton, M.V.O., D.F.C.

Flying Officers to be Flight Lieutenants.—L. A. C. Stafford, R. J. M. De St. Leger, R. C. Bryant, B. A. S. Lewin, W. E. Knowlden (Lt., Border R.), G. F. Moody, G. R. O'Sullivan, W. G. E. Hayman, A. T. S. Leguen de Lacroix, F. Carpenter, C. D. Pyne, T. A. Thornton, A. E. Woodbridge, G. M. Knocker, C. H. Harrison, H. C. Black, A. F. Ingram, J. M. Glaisher, D.F.C., A. H. Paull, W. Catchpole, A.F.C., C. G. Halliday, L. E. M. Gillman, R. Grice, D.F.C., T. S. Horry, D.F.C., M. M. Freehill, D.F.C., C. T. Walkington, P. J. Clayson, M.C., D.F.C., A. F. White, C. H. Cahill, G. S. Hodson, A.F.C., C. R. Smythe, S. T. B. Cripps, D.F.C., J. F. Titmas, J. A. Gray, D.F.C., A. W. Franklyn, M.C., A. R. Jones, H. L. P. Lester, J. R. F. Randell, D.F.C., C. E. Horrex, A.F.C., F. H. Ronksley, M.C., W. A. B. Buscarlet, F. G. A. Robinson, H. W. Clayton, H. E. Forrow, R. Ivelaw-Chapman, D.F.C., C. E. H. Allen, D.F.C., J. W. Turton Jones, G. C. Bladon, D. L. Evans, M.C., D.F.C., H. G. Sawyer, A.F.C., W. Sanderson, A.F.C., C. E. Barraclough, M. C. Dick, T. C. Traill, D.F.C., H. W. Heslop, H. J. T. Russell, G. Archer, H. W. St. John, D.F.C., A. E. Case, E. J. Kingston-McCloughry, D.S.O., D.F.C.

Stores Branch.

Squadron Leader to be Wing Commander.—F. C. Williams, O.B.E.

Flight Lieutenant to be Squadron Leader.—F. Tedman, M.B.E.

Flying Officers to be Flight Lieutenants.—L. H. Hillier, J. Lundon, E. A. Tottle.

Accountant Branch.

Squadron Leaders to be Wing Commanders.—C. P. Ogden, O.B.E., T. H. Evans.

Flight Lieutenants to be Squadron Leaders.—E. N. E. Waldron, A. R. Thomas, T. C. Miller, M.C.

Flying Officers to be Flight Lieutenants.—J. C. Brice, W. E. Ennis, A. W. Gray, J. Baines, L. de L. Leder, F. M. Gingold, M.B.E., L. J. Marden, O. K. Griffin.

Medical Branch.

Air Commodore to be Air Vice-Marshal.—D. Munro, C.B., C.I.E., M.B., M.A., F.R.C.S. (E.).

Appointments.

Week ending July 6.

General Duties Branch.—Squadron Leader G. H. Hall, A.F.C., to R.A.F. Depot on transfer to Home Estab., 15/6.

Flying Officers B. I. Carter, to R.A.F. Depot on transfer to Home Estab., 17/6. F. S. Henderson, to R.A.F. Depot on transfer to Home Estab., 12/6. H. J. White, to R.A.F. Depot on transfer to Home Estab., 16/7. R. L. Yates, to No. 20 Sqdn., India, 6/6. L. E. Cutforth, to No. 5 Sqdn., India, 1/6. (Hon. Flt. Lt.) H. W. A. Fox, to No. 28 Sqdn., India, 6/6. N. H. F. Unwin, to R.A.F. Depot on transfer to Home Estab., 19/6. C. J. Watson, to R.A.F. Depot on transfer to Home Estab., 19/6. L. Martin, to C. and M. Party, Cattewater, 1/5. M. H. Garnons-Williams, to H.M.S. *Eagle*, 20/6.

Pilot Officers H. R. F. Baxter, to R.A.F. Depot, 26/6. J. A. P. A. Yearsley, to No. 28 Sqdn., India, 1/6. G. A. Simons, to No. 31 Sqdn., India, 27/5. A. C. Watkins, to No. 2 F.T.S., Digby, on transfer to Home Estab., 13/6.

Medical Branch.—Flight Lieutenant J. S. Wilson, M.D., B.A., to R.A.F. Depot on transfer to Home Estab., 9/6.

Flying Officers R. F. G. Dickson, to No. 24 Sqdn., Kenley, 20/6. A. Harvey, M.B., to Engine Repair Depot, Egypt, 17/6.

Stores Branch.—Flying Officer A. J. Redman, D.F.C., to C. and M. Party, Cattewater, 1/5.

The Fleet Air Arm.

The following appointments were announced by the Admiralty on June 30:—

Lieuts. (Flying Officers, R.A.F.).—H. Ditton, H. R. Hancox, J. G. Mills, and C. B. Tidd, to *Eagle*, and for flying duties (May 20); H. E. Guerrier, E. J. S. Knocker, and M. S. Slattery, to *Furious*, and for flying duties with No. 420 Flight; E. W. Anstice, to *Furious*, and for flying duties with No. 462 Flight (July 2); M. Cursham, to *Eagle*, and for flying duties with No. 460 Flight (June 25); R. G. Poole and A. M. Kimmins, to *Eagle*, and for flying duties with No. 460 Flight (date of sailing).

Lieuts. (E.).—F. H. Kennedy (Flg. Off., R.A.F.), to *Eagle*, and for flying duties with No. 460 Flight (June 25).

Royal Air Force.—Wing Cdr.—J. T. Cull, D.S.O., to *Hermes*, on recommissioning (June 3).

Flt. Lts.—A. W. Fletcher, D.F.C., A.F.C., and E. S. Moulton-Barrett, to *Hermes*, on recommissioning (June 3).

Flg. Off. (Hon. Flt. Lt.).—L. W. H. Phillips, to *Hermes*, on recommissioning (June 3). Flg. Offs.—W. H. Jinman, W. C. Farley, W. W. Bradford, W. F. Davenport, R. F. Overbury, C. Guppy, T. Brewin, J. V. Medcalf, A. A. B. Chipper, J. B. Lynch, L. Young, and N. Young, to *Hermes*, on recomissioning (June 3).

A Royal Investiture.

H.M. the King held an Investiture at 11 a.m. on July 4.

Those in attendance upon His Majesty included Air Marshal Sir John Salmond (Principal Air Aide-de-Camp).

The following officers of the R.A.F. were among those introduced into the presence of the Sovereign and invested



ROYALTY AND THE R.A.F.—H.R.H. Prince Henry inspecting the R.A.F. Guard of Honour (supplied by No. 2 Flying Training School, R.A.F., Digby) on the occasion of his visit to Grantham. The Guard of Honour was under the command of Flt. Lt. C. T. Anderson, D.F.C., and presented a remarkably smart appearance.

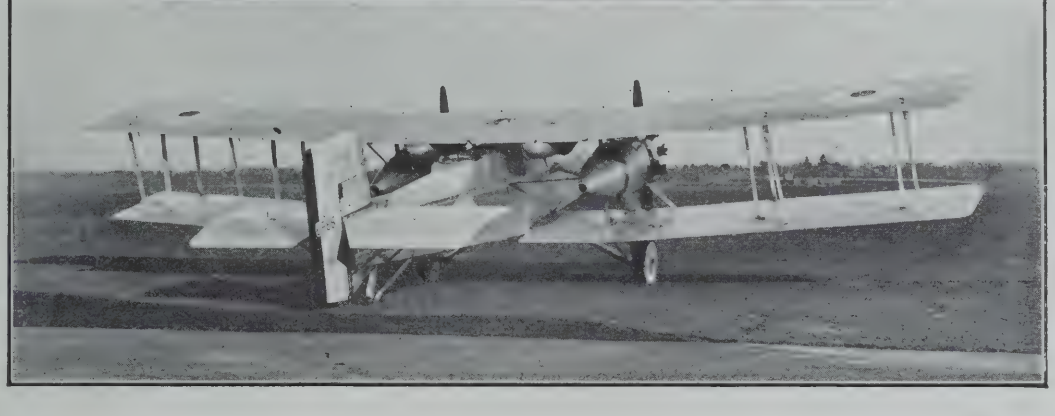


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with the Insignia of the respective Divisions of the Orders into which they have been admitted :—

The Most Excellent Order of the British Empire (Military Division) :—

Officers : Sq. Ldr. N. Spratt, R.A.F.

Members : Flg. Off. E. Bullen, R.A.F., Flg. Off. E. Newman, R.A.F., and S-M. A. Harbot, R.A.F.

His Majesty then conferred Decorations as follows :—

The Distinguished Flying Cross : Sq. Ldr. R. Saul, R.A.F., Flt. Lt. T. Thompson, R.A.F., Flg. Off. D. Anderson, R.A.F., and Flg. Off. A. Shipwright, R.A.F.

Bar to the Air Force Cross : Flt. Lt. R. Booth, R.A.F.

The Air Force Cross : Flt. Lt. W. Somervell, R.A.F.

The Formation of No. 502 Squadron.

An Air Ministry communique dated July 4 states :—

It is notified for information that the first Special Reserve Squadron to be established under the Home Defence Expansion Scheme of the R.A.F. is in course of formation at Aldergrove Aerodrome, near Belfast. This unit has been allotted the title of No. 502 (Bombing) Squadron.

The Squadron, like all Special Reserve units of the R.A.F., will be composed of approximately one-third regular and two-thirds non-regular personnel, the majority of whom must be skilled tradesmen.

The organisation of the squadron on its regular side is now complete and as from Monday, July 6, the Officer Commanding the squadron is prepared to receive applications for engagement as officers and airmen from Belfast and surrounding district.

In the first instance the squadron will be equipped for training purposes with Avros and Vickers Vimys, and at a later date it will be provided with aircraft similar to those of a regular twin-engined Bombing Squadron.

A Fatal Accident.

The Air Ministry regrets to announce that as a result of an accident at Duxford to an Avro of No. 19 Squadron, Duxford, at 2 p.m. on July 2, Flg. Off. Herbert Vincent Kerckhove, M.C., the pilot of the aircraft, was dangerously injured and died shortly afterwards.

The Defence of Gibraltar.

The following statement appeared in *The Daily Express* on July 4 :—

The Daily Express understands that Major-General E. B. Ashmore left London yesterday for Gilbraltar to organise the air defence of the famous British fort, known for generations as the key to the Mediterranean.

General Ashmore will spend ten days with the artillery garrison, investigating the possibilities and difficulties of the air defence. The circumscribed area for taking off and landing aeroplanes makes the problem an extremely crucial one, in view of the questions arising at the moment in that part of the world.

It was General Ashmore who invented the great veil hung in the sky near London during the war as a protection against enemy aeroplane and Zeppelin attacks.

General Ashmore was G.O.C. London Air Defence Area in 1918. He commanded a brigade of the R.F.C. in France and was taken thence to organise the air defences of London.

A Mediterranean Cruise.

A Reuter message in *The Times* of July 7 states :—

Malta, July 6.—Five Fairey seaplanes under Sq. Ldr. Slatter, Commanding Officer, R.A.F. Base, Malta, left this afternoon on a flying cruise, which, given favourable weather, will last about a fortnight. The machines are going to Sicily, Naples, Rome and Rapallo, stopping a day or two in each place, and returning by Corsica and Sardinia, and thence by Naples and Sicily to Malta.

The establishment of the R.A.F. Base at Malta includes No. 481 Flight, R.A.F., which is equipped with Fairey III.D machines with Napier engines.

An R.F.C. Re-Union in Baghdad.

A Re-Union Dinner was held in Baghdad on June 19 of the Officers and Men of the R.F.C., Military Wing, Naval Wing and Central Flying School.

The toast of the King was proposed by Air Vice-Marshal Sir John Higgins, A.O.C., British Forces in Iraq.

The R.F.C. Naval and Military Wings was proposed by S.-M.1 L. R. Metz and replied to by Air-Commodore Dowding for the Military Wing and Group Capt. C. L. Courtney for the Naval Wing.

S.-M.1 C. W. Baker proposed the Central Flying School and Group Capt. A. G. Board replied.

S.-M. Ellard, President of the Dinner Committee, then proposed the R.A.F., coupling with it the name of Air Vice-Marshal Sir John Higgins.

According to *The Baghdad Times*, the Air Vice-Marshal replying, remarked on the great enthusiasm with which they had all drunk their own health, and went on to refer to the wonderful development of flying since the early days of the R.N.A.S. and the R.F.C., and to the splendid Service which now exists—the present Royal Air Force. He further recalled the minor difficulties which he experienced when a Naval Section formed part of his command in France, owing to the difference in routine matters such as "Bells," "Watches," and "Cooks Galleys."

In speaking of the present R.A.F., he made special reference to the general efficiency of both pilots and mechanics, and referred to a certain section of the British press which exalts the capabilities of the civilian mechanic to the detriment of the mechanics of the R.A.F. He added that those in a position to know were aware that the mechanics of the R.A.F. were absolutely splendid, and much of the success of the R.A.F. was due to their abilities.

Air Affairs in Parliament.

KENLEY.

In the House of Commons on June 24, in repaly to a question by Capt. Garro-Jones, the Secretary of State for Air said that Kenley Aerodrome was of great importance in relation to the air defences of the country. It would not be satisfactory to have the training of the Units allotted to that Station carried out elsewhere even if another Station were available. The low flying which takes place was inevitable in the normal training of Service Squadrons. There was no more low flying at Kenley than at any other Station.

PARACHUTES.

In the House of Commons on June 24, in reply to a question by Mr. Viant, the Secretary of State for Air said that the particular parachute which failed to open and save the life of Corporal Wilson had been tested by being twice dropped with a weight attached from an aeroplane. It had also been used for twelve practice parachute jumps prior to the accident. The examination of the parachute which took place immediately after the accident showed that it was in perfect working order.

THE SUDAN-LAKE CHAD FLIGHT.

Replying to Sir F. Sykes in the House of Commons on June 26, the Secretary of State for Air said that it was still intended to undertake a flight from the Sudan to Lake Chad. It was not yet possible to give an estimate of the cost of the flight. The only permanent flight facilities which would be maintained were those already in existence in the Sudan.

IMPERIAL DEFENCE.

In the House of Commons on June 29, Sir F. Sykes asked the Prime Minister whether he was satisfied as to the effect in practice of the recommendations of the sub-committee of the Committee of Imperial Defence published in 1923 on the relations between the Navy and the Air Force; and whether he would call for a review of the organisation of the co-ordination of the three Defence Services with a view to obtaining a definite measure of improvement in economy and efficiency.

The Prime Minister : "The answer to the first part of the question is in the affirmative; the second part therefore does not arise."

LIGHTER-THAN-AIR CRAFT.

In the House of Commons on June 29, in reply to a question by Mr. Viant, the Secretary of State for Air said that the cost of reconditioning the R.33 prior to April last was £28,800. The cost of one charge of hydrogen gas for experimental purposes was approximately £1,000. The cost of the scientific instruments was £521 and the cost of the civilian labour employed in getting the airship out of her base at Cardington on Apr. 2 and into the hangar at Pulham on Apr. 17 was £66 and £193 respectively, the latter sum including payment of a party which stood by for part of the night.

Replying to a further question by Mr. Viant, Sir Samuel Hoare said that the only British airships in existence were the R.33 and the R.36, which were being reconditioned for aero-dynamic and semi-tropical trials. The approximate cost of these airships was £350,000 each. The R.33 had flown 800 hours, the R.34 500 hours, the R.36 97 hours, and the R.38 70 hours.

KITE BALLOONS FOR TRAFFIC DIRECTION.

In the House of Commons on July 2, Capt. Brass suggested that the Home Secretary should employ an Army Kite Balloon stationed in one of the parks to enable the Metropolitan Police to study the points of congested traffic from a convenient angle.

Sir W. Joynson Hicks said that the Commissioner already had the suggestion in mind.

AIRCRAFT (NOMENCLATURE).

In the House of Commons on July 2, Sir H. Brittain asked the Secretary of State for Air to give airships, and eventually aeroplanes, names instead of numbers to commemorate pioneers of the aeronautical world.

Sir Philip Sassoon said that the suggestion would be favourably considered as regards airships, but could not be applied satisfactorily to aeroplanes.

AIR DISPLAYS.

Sir H. Brittain then asked that occasional reviews of the R.A.F. might be held in other parts of Great Britain as well as at Hendon. Sir P. Sassoon replied that the Service Aerodromes were at present so far removed from the larger centres of population that it would be difficult to carry out the suggestion. It might be possible when the new stations in connection with the Home Defence and Auxiliary Air Force schemes were developed.

THE R.A.F. DISPLAY.

Replying to Capt. Brass, Sir P. Sassoon said that there were roughly 100,000 people present at the R.A.F. Display on June 27 and 137 machines were employed.

Capt. Brass thought that the Air Force were to be heartily congratulated.

Mr. Thurtle (who periodically inquires whether the Aircraft Apprentices at Halton are being taught to bomb their fellow-creatures from the air) wanted to know if there were any casualties at the Display. Sir P. Sassoon's reply was in the negative. Sir H. Brittain was concerned about the failure of the wireless signals and wanted to know who was the individual responsible. Sir P. Sassoon regretted that nothing could be done.

R.A.F. ACCIDENTS.

In the House of Commons on July 1, in reply to a series of questions by Sir F. Sykes, the Secretary of State for Air supplied the following facts :—

During the period Apr. 1, 1924, to May 31, 1925, there were 274 flying accidents in the R.A.F. They were attributable to the following causes :—

1. Engine or installation failure, 25; 2. Error of judgment, 142; 3. Combination of engine or installation failure and error of judgment, 23; 4. Defect in aircraft construction, 5; 5. Defect in aircraft design, 7; 6. Defect in aicraft maintenance, 1; 7. All other causes, 71.


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SHORT BROTHERS' EXPERIMENTAL DEPARTMENT.

There are few works belonging to aircraft-constructing firms which one has yet seen, in which there are to be found so many and so diverse a series of activities as at those of Short Bros., at Rochester. The firm were, as is well known, the first to construct aeroplanes in this country, and at the time of the outbreak of war they were admittedly the leading seaplane constructors of this country.

During the war Short seaplanes—many of them built by the firm itself, large numbers by sub-contracting firms—were used by H.M. Services probably in larger quantities than were similar types of any other design, and their present extensive works were acquired and equipped to meet the war-time demand for their products.

After the War Short Bros. had to find business of some kind which would allow them to keep their works running and their staff employed and to indulge in a programme of experiment in connection with aircraft which would permit them to resume aircraft construction as their main object in life when the demand once more revived.

The work which they have found to do ranges from boat and small ship-building, through motor-body construction, to the building of complete electric trolley-'buses.

Thanks to the success of this diversion of their activities, the firm has been able to expend a large amount of energy on experiment for aeronautical ends. It is fairly well known that Short Bros. undertook the development of all-duralumin aircraft in this country entirely at their own initiative, and very definitely without undue encouragement in official quarters, and it required much persistence and persuasion to obtain even a very small amount of support from the Air Ministry in the shape of orders. As is fairly well known, the general official attitude towards metal construction, distinctly favours steel rather than duralumin for British aircraft.

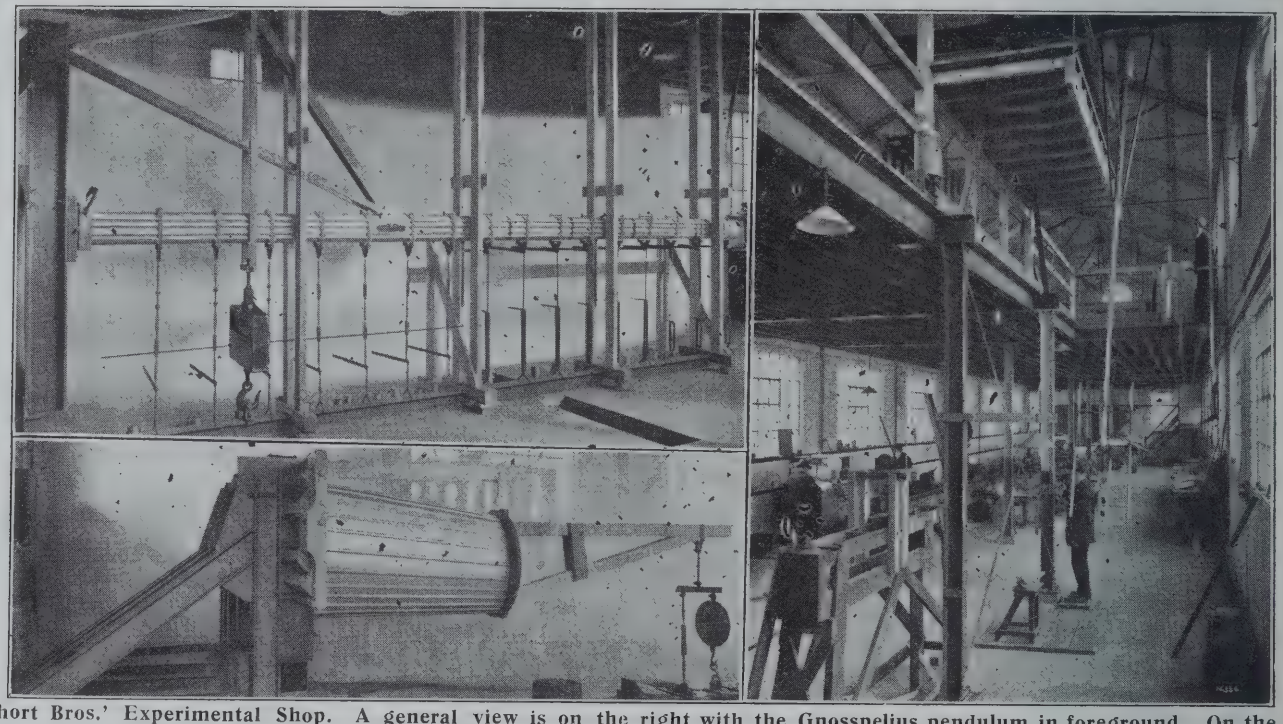
On the other hand, for seaplanes, it is probably safe to say that steel is an impossible material—certainly so far as floats and hulls are concerned—whereas duralumin is a perfectly suitable material for the construction of such parts. The only possible objection to duralumin is on the score of its liability to corrosion. But in fact duralumin definitely resists the corrosive action of salt water better than most steels, including those generally used for fittings, and so forth, on seaplanes, and experience so far indicates that at the worst the life of a duralumin hull can be reckoned in years—so far as corrosion troubles go.

It is thus a little surprising that no more encouragement was extended to Short Bros. when they proposed the construction of experimental duralumin hulls. Fortunately, however, Mr. Oswald Short has not lost those qualities of perseverence and persistence which marked the earlier pioneering efforts of the brothers Short, and experimental work with duralumin seaplanes has now received official approbation and support, and there is quite a considerable activity in the design and construction of light-alloy aircraft in this country at the present moment.

It is quite a simple matter to discuss the pros and cons of any particular method of aircraft construction in general terms. It cannot be too often emphasised that between the conception of a new method of construction and the successful manufacture of aircraft according to that conception, there is generally the need for a vast amount of usually extremely expensive, and often very heart-breaking, experimental work.

It thus comes about that much the most interesting section of Short Bros.' works to one who is interested in aircraft, is their experimental department where the bulk of the work of development of metal construction is carried on.

This is very completely equipped for those more purely



Short Bros.' Experimental Shop. A general view is on the right with the Gnosspelius pendulum in foreground. On the left a metal wing spar and a metal fuselage section are under test.

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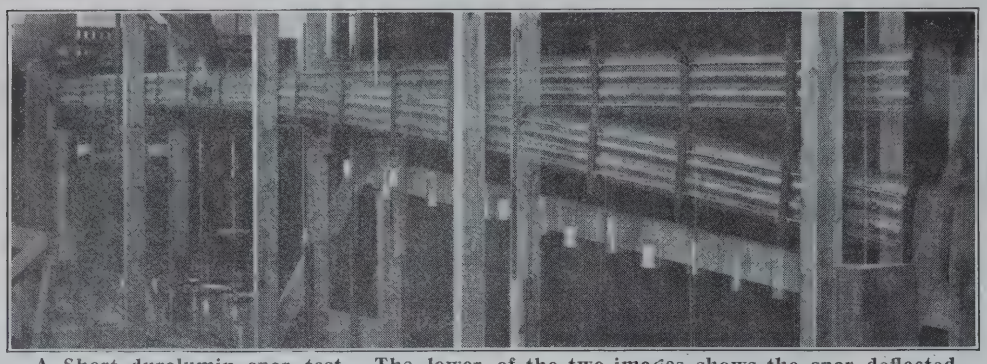
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



A Short duralumin spar test. The lower of the two images shows the spar deflected by a load five times normal. The upper image is of the spar after removal of the load.

mechanical tests which are necessarily part of the procedure of developing new structural designs. In photographs which are here reproduced, the rig for testing a large duralumin wing spar, and a section of a fuselage, are well shown.

The methods used for testing the spar itself are worthy of some description. The spar—which is of a size appropriate to a very large flying boat—is essentially a box-girder, built out of strips of fairly heavy gauge plate, corrugated longitudinally in a manner universal in British steel spar construction, and rivetted together. The side members of the spar are each one strip of uniform thickness. The top and bottom members are built of strip of the same, or similar, thickness to that of the sides, but the number of thicknesses used is varied to suit the varying stress intensity.

The test arrangements are fairly obvious in the photograph. The inner end of the spar abuts on a roller fixed to a vertical buttress. From the top of this buttress a diagonal steel member runs to a strut and wire fitting and takes the place and the load of the normal flying wire. A second steel girder runs up from this fitting at an angle corresponding to that of an interplane strut, and this member is tied to the buttress by another strut. A load is applied to this mock interplane strut through a screw gear and a weighbridge, to simulate the load transmitted through the real interplane strut by the other (lower) wing. At intervals along the spar, corresponding to the rib positions, further loads, corresponding to the lift load on the wing itself are applied, by hanging weights on the ends of a system of levers.

A composite photograph, which is also reproduced, shows this same spar, in one image with a loading corresponding to five times normal, and in another after this load has been removed. It is just possible, by placing a straight-edge along the upper image to discover a slight permanent deflection.

In a general view of the experimental shop, a very interesting piece of apparatus can be seen on the right-hand side, hanging down from the roof. This is the Gnosspelius pendulum for testing aircraft models, which was designed as a cheap substitute for the wind tunnel. This piece of apparatus has now been extensively used by Short Bros., and has been found to give very satisfactory results.

During the past few months Short Bros. have provided themselves with a tank for the testing of float and boat hulls on the water. The only other tanks of this type of which one knows in this country are the Wm. Froude tank at the N.P.L., an Admiralty tank somewhere in the neighbourhood of Portsmouth, and two others belonging to famous shipbuilding firms. There may be one or two which one has no knowledge—but there cannot be more than half-a-dozen or so in Britain, and of these the N.P.L. tank alone has hitherto been available for seaplane experiments, which, however, have had to be sandwiched in between ship-model tests.

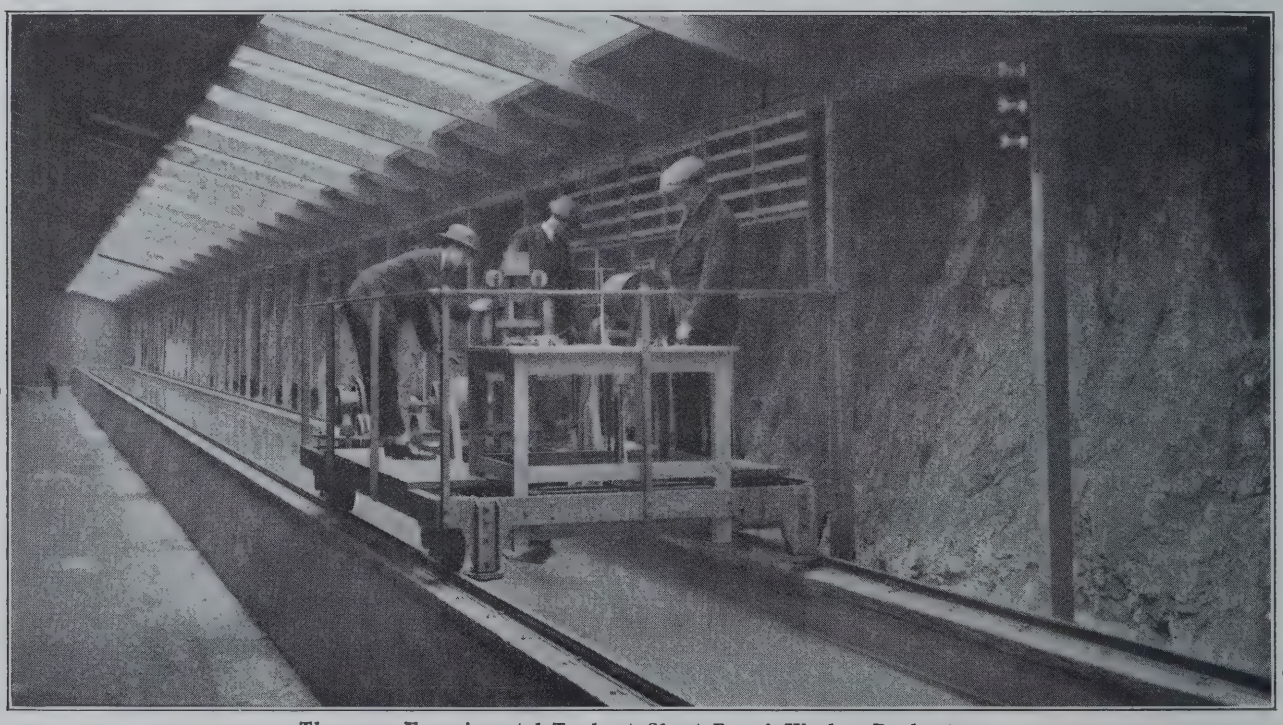
As a result of this state of affairs nothing like adequate data for the design of new floats and hulls has yet been available, and even with the limited experience yet obtained from the new tank, Short Bros. have found it possible to make very marked improvements in the water resistance of their hulls.

The Short tank is well shown in a photograph here reproduced. It is at present some 250 feet long, and the carriage can attain a maximum speed of 12 m.p.h. It is in course of extension to a length of 300 feet, and measures to increase the speed to a miximum of 20 m.p.h. are to be taken. The N.P.L. tank has a maximum speed, if memory serves, of about 15 m.p.h., so that the Short tank will permit of tests beyond the present range of Teddington.

The tank proper is a concrete trough about seven feet wide by four feet deep, along the edges of which a railway is arranged. A platform, driven by an electrical motor, runs upon these rails, and carries the float to be tested, and the necessary instruments for measuring resistance, angle of trim and so forth.

The whole of the instrumental equipment of the tank has been designed and constructed by Short Bros., and is both neat and ingenious. Tests made in this tank on a model already tested at the N.P.L. gave a very close agreement, and there is already evidence that the new tank will prove of the greatest possible value in the design of seaplanes.

Unfortunately nearly all the new work in hand at Rochester is of a confidential nature and may not be described in any kind of detail. It may, however, be said that particularly in regard to seaplane floats and hulls Short Bros. have now developed a type of structure of a very remarkable simplicity and lightness which is undoubtedly both cheaper and lighter than any float or hull structure which one has yet seen.—W. H. S.



The new Experimental Tank at Short Bros.' Works, Rochester.

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per day.—Monday, 34; Tuesday, 30; Wednesday, 22; Thursday, 26; Friday, 26; Saturday, 14; Sunday, 10.

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London—Paris—Zurich; London—Ostende—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 87, passengers 412, freight 14 tons.

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Total number of trips by British machines: 109, carrying 479 passengers. Foreign machines: 69, carrying 294 passengers.

Comparative Figures:

For week ending July 5:
Machines, 162; Passengers, 724; Crews, 208; Total personnel, 932.

Corresponding week, 1924:
Machines, 160; Passengers, 632; Crews, 197; Total personnel, 836.

Corresponding week, 1923:
Machines, 120; Passengers, 571; Crews, 195; Total personnel, 766.

Corresponding week, 1922:
Machines, 104; Passengers, 296; Crews, 156; Total personnel, 452.

Corresponding week, 1921:
Machines, 102; Passengers, 331; Crews, 127; Total personnel, 458.

Corresponding week, 1920:
Machines, 90; Passengers, 138; Crews, 110; Total personnel, 248.

Croydon Notes.

Things are progressing much as usual at Croydon, the event of the week being the King's Cup Race. The furious dumping of dutiable goods went on until Tuesday, but in spite of this having now ceased, there has been plenty of goods traffic. Mr. Eskell was bemoaning the fact that he had had no available seats to Amsterdam or Paris for weeks as all machines have been booked up in advance.

Mr. Eskell's struggles to fit just one more passenger into the machines under the eagle eyes of the authorities are almost as heartrending to watch as those of the Editor trying to squeeze one more line into an overloaded page of THE AEROPLANE under the eagle eye of the printer. But one hopes Mr. Eskell is more successful.

Last week the D.H.54 flew over the aerodrome but did not land. It had been doing a test flight, during which it was seen over the West End of London.

A word of praise must be given to Mr. Berry who is now in command of the Trust House. Mr. Berry will be remembered by many as the caterer for some time of the Farnborough Mess. The only complaint one can make is that the Trust House G.H.Q. do not send down more experienced extra waiters for these rush days. Anyhow the food was good and the service comparatively quick, especially when one remembers how under former managements one frequently took two hours for lunch. Mr. Berry himself worked like a nigger and looked thoroughly worn out on Saturday evening.—G. D. [But what would have happened if there had been a real crowd?—ED.]

The South African Mail.

A brief announcement appeared in THE AEROPLANE on June 3 stating that the Durban Air Mail Service would be discontinued as from June 1.

According to *The Cape Times* of June 1, the Hon. Thomas Boydell, Minister of Posts and Telegraphs, issued the following statement: "The three months' air service between Cape Town and Durban, which was inaugurated in order to demonstrate the practicability of civil aviation in South Africa, has from a flying point of view been remarkably successful. But as a commercial venture it has been disappointing, as it has certainly not received the support expected."

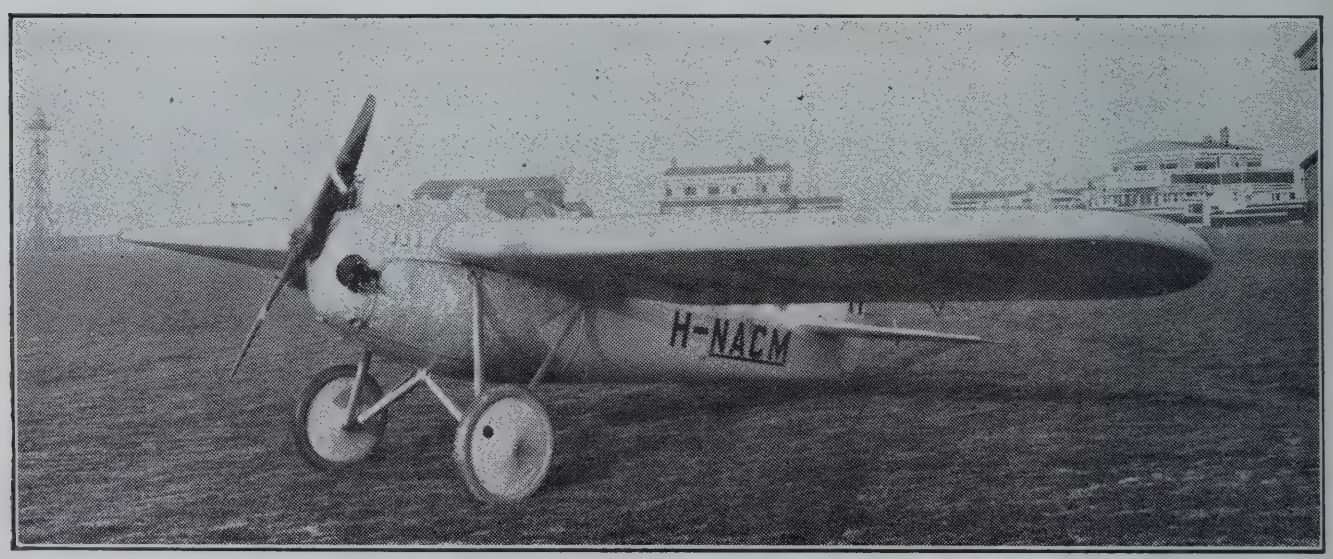
Mr. Boydell in an interview said that 100 per cent. efficiency had been obtained from the flying point of view and the greatest possible credit was reflected on the pilots concerned. The commercial community, however, had not made use of the service.

An extension of two weeks after June 1 was made in order to deal with the mail matter posted in England up to the end of May, and the last flight took place on June 15.

During the three months of this experimental service 27,500 miles have been flown and 276 bags of mail carried. There were 32 flights made and only one machine crashed. No mail boats were missed and there were no fatalities or injuries to the personnel of the service.

On one occasion the weather was so bad that the mail boat did not put out to sea until 24 hours after its scheduled time

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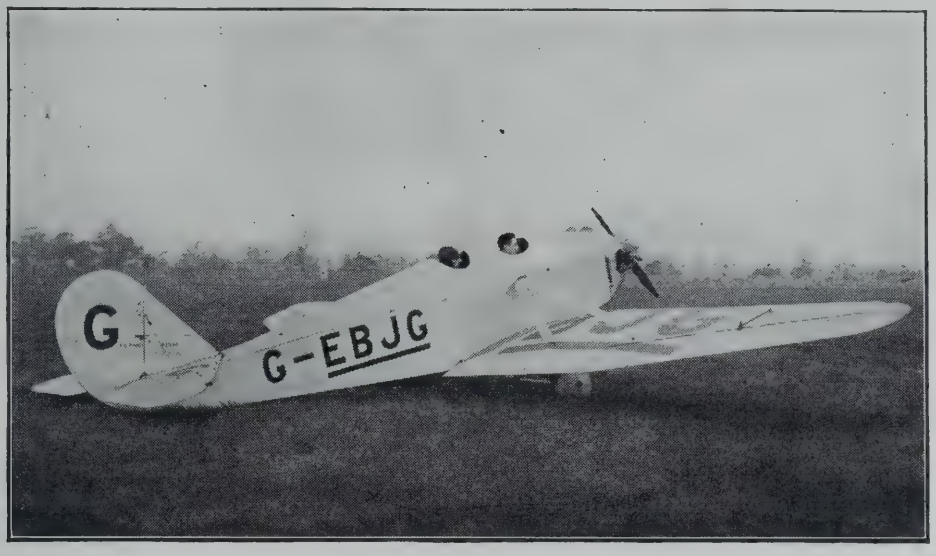
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for departure, but the Air Mail machines came through in the face of a howling gale to arrive at Wynberg an hour and a half before their schedule time.

The Service was in the hands of the South African Air Force and under the direct command of Lieut.-Col. Van der Spuy, M.C.

The Italian Schneider Cup Machines.

Both the Macchi and the Piaggio firms have built machines designed to compete in this year's race for the Schneider Cup.

Two types of Macchi are possible runners. One of these is the Macchi 33. This machine is a monoplane flying boat fitted with a 450 h.p. Curtiss D.12 engine.

The wing is in three portions, consisting of a centre section fixed direct to the hull and two outer sections, both of which taper from the centre section to the wing tips. The engine is mounted above the centre section on a pyramid of steel-tubes and drives a tractor airscrew capable of turning at 2,300 r.p.m. Radiators of a new type are fitted. The pilot is situated in the rear of the engine. The speed of the M.33 is estimated to exceed 300 km.p.h. (186.3 m.p.h.).

The other Macchi, the M.27, is of the "sesquiplan" type. The lower wing is very thick in section and of very small span and is built onto the lower part of the hull, thus acting as balancing float when the hull is on the water. The upper wing is braced from the hull by diagonal rigid struts and by a central cabane which also carries the engine housing. This latter is mainly above the top wing. The M.27 has been designed to take either a new 450 h.p. Fiat engine which weighs 508 kg. (1,120 lbs.), or the Curtiss D.12 engine which weighs 328 kg. (725 lbs.). With the Fiat the total weight of the machine is 1,350 kg. (2,980 lbs.) and the estimated top speed is 330 km. (204 m.p.h.). With the D.12 the loaded weight is 1,170 kg. (2,580 lbs.) and the maximum speed 334 km. (205 m.p.h.). The total wing area is 16.7 m.² (179 sq. ft.).

The Piaggio is a low-wing cantilever monoplane mounted on twin floats. Like the Macchi 27 it will take either the 450 Fiat or the Curtiss D.12. The total weight with the Fiat is 1,500 kg. (3,300 lbs.) and the estimated speed 292 km. (181 m.p.h.), and with the D.12 the weight is 1,320 kg. (2,910 lbs.) and the top speed 294 km. (184 m.p.h.). The wing area is 19.5 m.² (208 sq. ft.).

The Duke of York at Wembley.

The collection of ancestral aircraft and modern gadgets in the Palace of Housing and Transport at Wembley was visited by H.R.H. the Duke of York, K.G., on June 26. His Royal Highness was particularly interested in the Reid Time Reaction Apparatus, which was demonstrated to him by its inventor, Flt. Lt. G. H. Reid, D.F.C., R.A.F.

This apparatus has been presented by Sir Charles Wakefield to the London Light Aeroplane Club where it will be used to eliminate from the list of waiting candidates those who are unlikely ever to become good pilots. At present it is on loan at Wembley, where for a fee of two shillings anyone may work the controls against the time-recording mechanism and receive a chart of the test. Duplicates of these charts will be kept for data at the Research Laboratories of the R.A.F. Medical Service.

PERSONAL NOTICES.

DEATHS.

KERCKHOVE.—On July 2, at Duxford, as the result of a flying accident, Flg. Off. Herbert Vincent Kerckhove, M.C., No. 19 (Fighter) Sqdn., R.A.F.

Mr. Kerckhove was a Lieutenant in 4th (Extra Reserve) Batt. East Surrey Regt. during the War and joined the R.A.F. in March, 1923. He was posted to No. 5 F.T.S., Shotwick, for a long course. In March, 1924, he went to Netheravon and was posted to Leuchars in May of the same year on appointment to No. 404 (Fleet Fighter) Flight. He was promoted to the rank of Flg. Off. in October, 1924. Early this year he underwent a short course at the C.F.S. and was posted to No. 19 Sqdn. last April.

PANTER.—On July 4, suddenly, at Uxbridge, Isobel, beloved wife of Sq. Ldr. A. E. Panter, R.A.F.M.S.

FORTHCOMING MARRIAGES.

BIRKBECK—MOXON.—The marriage arranged between Flt. Lt. Robert Alexander Birkbeck, D.F.C., the R.A.F., son of the late Major V. M. Birkbeck (Royal Scots) and Mrs. Birkbeck, of Stackhouse, Bournemouth, and Mary Neville, only daughter of Mr. and Mrs. Reginald Moxon, of Albert Hall Mansions, Kensington Gore, will take place on July 11.

WALLIS—WILSON.—The engagement is announced between Mr. Aidan Arnold Wallis, B.A. (late Capt., R.A.F.), assistant master, Marlborough College, son of the late Arnold J. Wallis, Fellow and Bursar of Corpus Christi College, Cambridge, and Mrs. Wallis, and Miss Joan Musgrave Middleton Wilson, eldest daughter of the Rev. C. E. and Mrs. Wilson, of Charlton Musgrove Rectory, Wincanton, Somerset.

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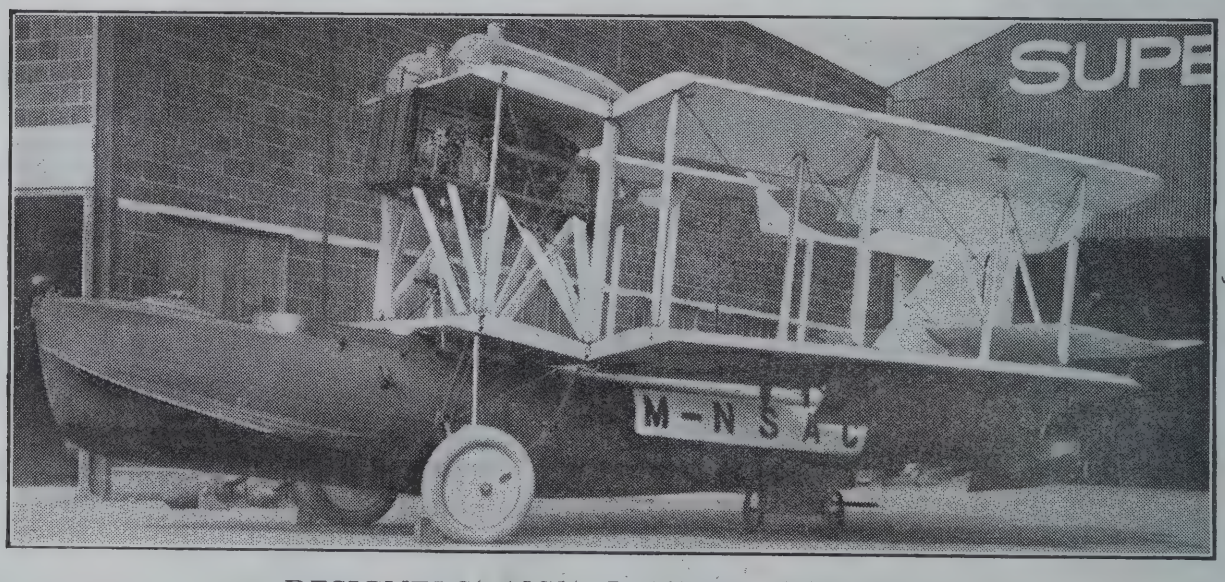
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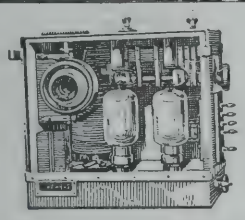
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BY THE LAKE.



AERIAL SURVEY IN CANADA:—A photograph of the Huff-Daland Seaplane belonging to the Fairchild Aerial Surveys Company (of Canada), Ltd., engaged in the survey of the Abitibi Southern Railway. It is to be hoped that this particular Southern railway may prove an unmixed blessing, unlike the British Southern Railway combine.



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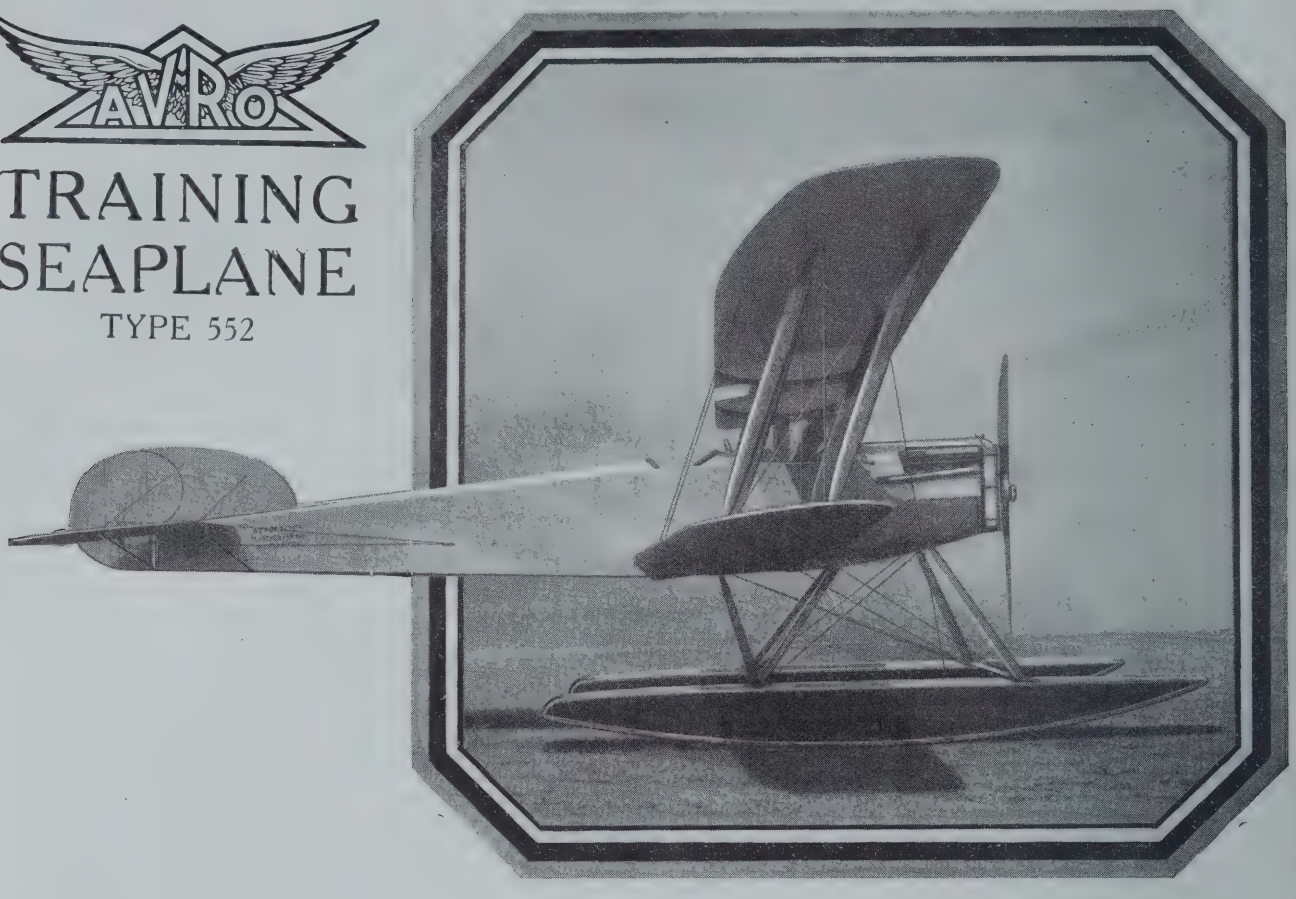
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No. 3.

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ON EVIL COMMUNICATIONS AND BAD MANNERS.

Some day air transport is going to be as popular as rail transport. And the sooner it becomes so the better it will be for international commerce and for international friendship. The motto which Mr. Kipling invented for his prophetic Aerial Board of Control, "Transportation is Civilisation," is a basic truth. And there is a proverb that evil communications corrupt good manners, which applies equally well when the word communications means transport facilities.

The easier it is for the people of all nations, so long as they are of the same race, to visit one another and communicate with one another the less chance there is of disagreements or wars between those nations. And there is no method of communication so quick or so comfortable as air transport.

In the days when transport was so bad that the inhabitants of a village regarded those of a village ten miles away as foreigners, and when in fact two such villages might be inhabited one by Jutes and the other by Saxons, there was no difficulty in the local lords of the manor working up quite a healthy war between their peoples. Later, when communications improved manners improved with them. Individual villages did not fight. But for centuries there was war between the English and Welsh and the English and Scots. And if there had been no Irish Sea there would have been no Irish War a few years ago.

As communications improved and the people of the three countries mingled together more freely the possibilities of actual war diminished, even though, thanks to Mendel's Law, the people of the countries continued to breed true to their ethnological types.

Improved communication during the past century by rail and steamboat has improved trade and improved national relations between this country and France in spite of the dissimilarity between the English Nordics and the French Mediterraneans. But owing to the bad communication between this country and Germany we have never learned to know our blood relations in Germany well enough to become really friendly with them. Similarly owing to the evil communcation with America we have actually been at war with our own family in America since we have been at war with France.

We have not fought Holland or the Scandinavian nations lately because we have had no cause to fight them, partly because they are so closely related to us, and also largely because there is so much constant communication by sea between England and those countries that we English do actually understand those people better than we understand any other Continental nation. Nevertheless better air communication between England, Holland and Scandinavia will bring us still more closely in touch with the people in those countries who are so closely related to us.

The Most Important Line.

Actually for us in this country the most important line of communication, apart from linking up the scattered units of the British Empire, is that with Germany. Germany was our best business client before 1914. We bought more from Germany than we did from any other country and the Germans bought more from us than they did any other country. Apart from that, as one has said so many times in this paper, Germany is the great barrier of Western Civilisation against Eastern Barbarism, and we must be prepared to support Germany against Russian invasion in the next war.

Therefore the sooner we establish rapid and reliable air transport lines between here and Germany the better it will be for everybody concerned. By doing so we shall improve our own trade, both import and export, and we shall make easier the task of our soldiers and aviators who will have to work with the German fighting Services in the next war.

Incidentally on this point one would like to make a few remarks for the benefit of German readers of The Aeroplane. A German publication which published a very full translation of the article which recently appeared in this paper on German Commercial Aviation remarks that Germany is not



BETTER COMMUNICATION.—M. Bajac alighting at Hammersmith from the Schreck Amphibian (300 h.p. Hispano-Suiza) on which he flew from Paris on June 30. But this is still unlike a commercial aeroplane.

going to be drawn into a war with her Russian neighbours in order to protect British interests. One would like to make quite clear the fact that one never made any such suggestion.

One believes that the alliance between Germany and England will take precisely the opposite course. That is to say, our Royal Air Force and the British Army's Expeditionary Force will go to Germany to help the very small but efficient German Army to withstand the first Russian attack until the German Government is able to raise and train an Army and an Air Force as powerful and as efficient as that which fought so well in the War 1914-18.

Safety, Regularity and Economy.

All that however is a digression, so let us return to the question of Civil Aviation. The success of Civil Aviation depends on three factors (A) Safety, first, (B) Regularity, and (C) Economy. And the greatest of these is Safety.

St. Paul remarked, in giving good advice to the Corinthians, that the spiritual gifts most to be desired are Faith, Hope and Charity, but that the greatest of these is Charity. Someone has also remarked that charity covers a multitude of sins. Presumably if one wanted to be charitable to Civil Aviation one would cover the sins of those who are responsible for it by writing only words pleasing to those who are responsible for Civil Aviation, such as the Government officials who control Civil Aviation in various countries and the people who direct or misdirect the air lines of those countries.

But one believes that although Faith, Hope and Charity are necessary to all those who are concerned with Civil Aviation the success of Civil Aviation depends considerably more on Safety, Reliability and Economy. And Charity must not be allowed to cover the sins of those who neglect any of those three cardinal virtues.

In a recent issue of The Aeroplane one published one's own experiences in the course of a journey by air from London to Berlin and back, and admittedly those experiences were not such as to encourage anybody to travel by air. They were however highly educative in that they indicated several directions in which air transport could be made safer and more reliable simply by the exercise of a little more intelligence and by the expenditure of a little more money.

Apparently that article has impressed a number of readers of The Aeroplane rather more than do most of the leading articles in this paper, presumably because a good many readers are more interested in the purely practical side of flying than they are in the bigger problems of the air which affect the Royal Air Force.

Unprejudiced Observations.

One highly esteemed correspondent, himself a well-known writer on aeronautical affairs, says in a letter about these articles :—

I found them extraordinarily interesting, and the conclusions drawn seem perfectly sound.

It does not say a great deal for the efficiency, regularity and reliability of air transport that you should have had trouble on both journeys, and in one case have been four hours late.

It proves again that the chain is no stronger than its weakest link, and the weakness in air transport seems to be the installation. We hear about these mishaps because a journalist happened to be on board. How often one wonders do similar things happen when no writer is among the passengers?

I hope your articles will ginger things up a bit.

Another correspondent remarks of the article :—

It is extremely interesting but I cannot imagine it will be too warmly received by the English aeronautical World.

On the whole the article has been very well received because the majority of the readers of this paper, with the exception of Air Ministry experts and a few people of that sort, are themselves practical aviators either as pilots or passengers and are therefore just as anxious as oneself to see flying made safe and reliable, for the sake of their own personal safety.

A Personal Experience.

Just by way of showing that one's experiences on the Berlin and back trip were not merely a stroke of bad luck for the air transport people in that one happened on an unusual crop of minor mishaps, one publishes hereafter a letter from Mr. Baldwin Raper, formerly an R.A.F. pilot and later a Member of Parliament. Mr. Raper is constantly travelling to Central Europe and being so keenly interested in aviation he naturally wants to travel by air as well as merely to save his own time. As an experienced pilot and an acute business man his letter is therefore the more valuable. He writes as follows :—

On Saturday, May 23, I flew in the ordinary British machine, which had a full load, from London to Amsterdam. Out of the passengers in this machine there were four of us bound for Germany, three, including myself, for Berlin and one for Hannover.

The Berlin machine, which stops at Hannover, was a comparatively small Fokker with seats for four passengers, but if full of passengers then the machine would certainly not have been capable of safely carrying any luggage.

The passenger for Hannover was persuaded to go to Bremen instead, and the three of us were put into the back seats of the Fokker, and our luggage in the front seats, after both we and our luggage had been duly weighed.

Owing to the wind we had to take off over the sheds, but the pilot, who from the moment he entered the machine did not appear to know what he was doing, in spite of being on three occasions waved further out from the sheds, took an insufficient run to allow of our clearing the sheds, and just as we were about to leave the ground throttled his engine back and continued our delightful course towards the sheds. He, however, changed his mind apparently on seeing the British machine from which we had arrived at the side of the sheds, and steered us into it, with the result that the wings of both machines were "done in," and I, having realised all the time that something dreadful was going to happen, nearly died of heart failure.

We then proceeded in another similar type of machine and I need hardly say with a different pilot, after one of the other two passengers had been persuaded to leave one of his bags behind. We then had a first-class pilot, but he only just managed to clear the tops of the trees adjoining the sheds.

We had slight oil trouble on the way to Hannover, where we had a further delay for adjusting the mechanism, and eventually arrived at Berlin over two hours late.

My points in reference to the foregoing are that, on the one hand, the margin of safety weight in the machines from Amsterdam should be much larger, and further that no pilot should be allowed to pilot these passenger machines unless he is thoroughly experienced in machines of these types carrying a full load, and unless he is perfectly fit in health.

The German pilot in question did not look fit to me when he entered the machine, and in reply to my inquiries after the accident I was told that although he had a first-class record as a German war



AN AIR TOURING PROPOSITION.—The De Havilland 51, a handy touring biplane designed to take the Aircraft Disposal Co.'s Airdisco 120 h.p. engine. The particular example shown is that entered by Mr. Stephen Donoghue for the King's Cup Race. When ground communications have improved there should be a big demand for this type of machine.

YET ANOTHER GREAT SUCCESS

THE KING'S CUP

Two Circuits of Britain Air Race (1,608 miles) for the Cup presented by
HIS MAJESTY THE KING
organised by the Royal Aero Club, under the Competition Rules of the Royal Aero Club, July 3rd & 4th, 1925,

1ST ON A **'SISKIN V'** AERO-PLANE
fitted with a
'JAGUAR' RADIAL AIR-COOLED ENGINE

entered by The Rt. Hon. Sir Eric Geddes, G.C.B., G.B.E. Pilot: Capt. F. L. Barnard.

Also making

FASTEST TIME

2ND ON A **'SISKIN IV'** AERO-PLANE
fitted with a
'JAGUAR' RADIAL AIR-COOLED ENGINE

entered by Sir Glynn Hamilton West. Pilot: Squadron Leader H. W. G. Jones, M.C.



Siskin Aeroplanes designed and constructed by Sir W. G. Armstrong Whitworth Aircraft Limited.

Jaguar Aero Engines designed and constructed by Armstrong Siddeley Motors Limited.

(Allied with SIR W. G. ARMSTRONG WHITWORTH & CO., LTD.)
Works and Aerodrome: Coventry. 10, Old Bond Street, London, W.1.



pilot he had not so far had much experience in piloting passenger machines.

Another point appears to be the lack of proper co-operation between the different Air Service Companies, apart from the fact that the office in Berlin—the Hamburg-American Line—appeared to do everything possible to discourage one from flying back to England from Amsterdam by informing me, as they told both a friend of mine and myself, that if we went to Amsterdam we could not continue to London on the same day as there was no accommodation—this in spite of the fact that the Imperial Airways had promised us both accommodation for the day in question.

Further, it appears to be most important that there should be one time-table published in every different country to which there is an air service, showing all the different routes. When I was inquiring about my trip from the Imperial Airways, they gave me to understand that there was no air service from Königsberg to Memel (Lithuania), but when I reached Memel I found there was a perfectly good service from Memel to Königsberg, and I in fact returned to England this way.

For your guidance, I might mention that not one of the following three time-tables gives anything like all the services which are advertised in the other two:—(1) Imperial Airways Ltd. (2) Luftverkehr mit Junkers-Flugzeugen. (3) Internationaler Luftverkehr.

With the exception, however, of this matter of time-tables I would like to add that my impression of the Imperial Airways is excellent, as from my observation, every possible detail appears to receive the most minute and careful attention.

Recent Accidents.

Now all this happened before one went to Berlin. And, as related in the account of that journey, one saw yet another Fokker machine crash at the Tempelhofer Feld in precisely the same way that Mr. Raper's machine was crashed at Amsterdam.

Last year Sir Bertram Jones, who during the War did good work at the Air Ministry, and his family were crashed in a D.H.34 at Amsterdam in almost precisely the same way. And the unfortunate pilot who crashed Sir Bertram Jones was eventually killed himself with four other people at Ivinghoe through his machine stalling and nose-diving when landing.

Captain Stewart and his passengers were killed on Christmas Eve through his machine stalling and spinning when getting off. Presumably the Fokker's faculty for stalling and sinking instead of nose-diving prevented more serious accidents in Mr. Raper's crash and in the Tempelhofer crash. But, as the writer of the letter first quoted hereinbefore suggests, one would like to know how many more of these crashes happen of which one never hears.

Of course it may be argued that there are multitudes of minor railway accidents and of minor steamship accidents of which one never hears. For example stalled engines on the great Southern Railway are one believes not merely daily incidents but incidents of every hour, taking the whole system into consideration. And the aggregate hours of lateness of trains either in England, France or Germany per day would probably come to a higher total than the number of hours flown by all the World's air lines per month. That however has nothing to do with the argument that air accidents must be prevented as far as possible and that the majority of air accidents can be avoided by the expenditure of a little intelligence and money.

The Way to Safety.

The latest developments of the slotted and flapped wing alone could prevent at a moderate estimate 75 per cent. of air accidents both in Civil Aviation and in the Flying Services. The combination of the slot the full length of the wing both in front and behind gives the necessary slow lifting speed or landing speed and the use of a leading-edge slot opening and shutting in conjunction with slotted ailerons gives that extraordinary lateral control which assures safety against spinning if a sinking machine endeavours to roll over sideways.

With a machine so fitted passengers can hardly come to grief unless a pilot actually lands on the top of a house and falls off into the street or alights on the side of such a steep hill that the machine rolls over it.

When once aeroplanes have been made safe against the dangers of starting and alighting and of turning close to the ground with a dead engine, or an engine which is giving insufficient power, all other troubles become mere minor defects. We can never hope to achieve such a state of perfection that engines never fail. Therefore the only thing to do is to organise on the assumption that every engine may fail at any moment.

With proper maintenance organisation and steady improvement in engine design we may ultimately arrive at a state in which engine failures are such a small percentage of the total mileage that they become almost negligible. Actual breakages in the aeroplane are even to-day far less frequent than engine failures. And risks of fire in the air can be almost ignored because they are so infrequent or because an outbreak of fire can almost always be extinguished with adequate apparatus.

Obviously therefore improvements in wing design and structure to include flaps and slots constitute the first stage towards safety.

The Money Factor.

So much being known, people may well ask why it is that every aeroplane, both Service and civilian, is not fitted with slots and flaps and especially why commercial aeroplanes plying for hire or reward are allowed to fly when everybody knows that they are unsafe and that the means of securing safety are already known. The answer to this question is simply that safe aeroplanes cost money, and apparently nobody is willing to spend the money on making them safe.

Although the effect of slots and flaps is perfectly well known not only to aeroplane designers but to nearly all practical aviators, there are numerous designers who are prepared to argue that the advantage to be obtained from slots and flaps does not compensate for the weight of the mechanism which operates them and that therefore a machine so fitted is less efficient and costs more to buy and to run than a machine with ordinary wings.

Other designers again will argue that though slots and flaps may do all that is claimed for them nobody has yet evolved a satisfactory mechanism to operate them and therefore that it is better to rub along with what we have got than to fit experimental gadgets,—on the principle that the devil you know is better than the devil you don't know.

There are even some designers who still think that slots and flaps are simply fictions of the imagination of Mr. Handley Page and Mr. C. R. Fairey.

The Need for Experiment.

The plain fact is that slots and flaps do rather more than their inventors originally claimed for them and do in fact assure safety in flying. But the two objections to their immediate use are (a) that the mechanism to operate them in conjunction is not yet perfected and (b) that nobody knows as yet precisely what effect slots and flaps will have on any given existing machine.

That is to say one cannot straightway take a set of wings of a standard type aeroplane and transform them into slotted and flapped wings by merely altering the leading and trailing edges and then expect them to operate perfectly on the machine to which they originally belonged. One has in fact heard of a case in which a machine which otherwise flew quite well was quite dangerous when fitted with flaps—though without slots.

Just what any given machine will do when fitted with slots and flaps and just what is the right sort of mechanism with which to work them and just how much flap and how much slot is wanted for any given wing curve or any given aeroplane can only be discovered by experiment. And apparently nobody is willing to pay for the experiments.

The Responsible Parties.

There are three groups of people who might solve the whole problem within twelve months if they cared to spend the money on doing it. These three are the Air Ministry, the British aircraft constructors and the British air transport firms.

The Air Ministry could in fact settle the question once and for all if it were prepared to spend somewhere between £100,000 and £200,000 on orders for experimental machines distributed among the firms in the Aircraft Industry. If each firm were given a matter of £12,000 or £15,000 and were told to produce a machine of any type it liked, either Service or civilian, with a certain given engine to carry a certain load within certain limits of low and high speed we should undoubtedly inside twelve months have at least one type of safe aeroplane.

But the Air Ministry, apparently acting on the advice of its experts, prefers to spends £400,000 per annum on the Royal Aircraft Establishment at Farnborough and produce at the end of three years' experimenting one set of wings for an Avro with a primitive set of experimental Handley Page slots acting in conjunction with the ailerons. For something like a quarter of the sum which the R.A.E. costs every year the Air Ministry could undoubtedly make flying safe.

So far as the Aircraft Industry is concerned one can quite understand the attitude of the various firms. Mr. Fairey invented or at any rate popularised flaps. Mr. Handley Page discovered and has endeavoured to popularise slots. If the patents taken out on these inventions by these inventors are used by any other firms then those firms will have to pay royalties to people who are in fact their business rivals.

One has seen precisely the same thing happen over and over again in the cycle trade and the motor trade during the last thirty years. If one firm invents something no other firm will touch it till obliged to do so by public demand. And if an inventor comes along with an invention and that invention is taken up by one particular firm other firms bar it as long as possible, chiefly because their *esprit de corps*, or perhaps one might call it *esprit de compagnie*, prevents them from acknowledging that the other fellow was cleverer than they were in seeing the benefit of the invention.

200 miles in 62 minutes with

NAPIER

WATER-COOLED

Aero Engine

THE last three Aerial Derbys have been won by Napier-engined Gloster machines. In 1923 the circular course of ***200 miles was covered at a speed of 192.4 m.p.h.***

The British speed record—211.2 m.p.h.— is held by a Napier-engined Gloster aeroplane

A Napier-engined Fokker machine, piloted by Major Zanni, covered 10,000 miles—Amsterdam to Tokio—in 22 days' flying.

D. NAPIER & SON, Ltd.

ACTON, LONDON, W.3

One remembers the pneumatic tyre being hawked round Coventry and recalls that some five years passed after its invention before the pneumatic tyre came into common use on bicycles.

The slot-and-flap wing is a still more difficult proposition because whereas the cost of fitting a set of tyres to a bicycle and experimenting with it was only a few pounds the cost of building and fitting and experimenting with a set of slot and flap wings would probably cost a couple of thousand pounds. And there would be in addition the risk of wrecking the machine if that set of experimental wings did not happen to suit the machine and made it uncontrollable, as they might.

If all the firms in the Aircraft Industry were making big profits one might accuse them of commercial stupidity in not taking such a small risk and in refusing to do their own experimenting. But under existing circumstances such an accusation would be unjust.

A Public Service Concern.

So far as the Commercial Aviation firms are concerned the only people who could do anything are Imperial Airways, Ltd. The only other commercial firms are the comparatively few joy-ride concerns who run joy rides or hire services. They certainly have no money to spend in expensive experiments, so there remains only Imperial Airways, Ltd. And Imperial Airways, Ltd., suffer from having shareholders who hope some day to receive dividends, and from having directors whose declared policy it is to secure economy in the hope of ultimately earning those dividends.

When this company was formed it took over all the old flying stock of the four original air transport companies, and though all this stock is now either obsolete or obsolescent it still has to be reckoned for financial purposes as an asset and not as a liability. And one imagines that the whole of the Government subsidy of £100,000 annually will be needed to cover the loss of operating with obsolete flying stock.

If the aeroplanes used by the firm came anywhere near earning their own keep possibly the firm might spend some tens of thousands of pounds from its subsidy money in paying for experiments with slot and flap wings. But certainly so long as the directors adhere to their present policy it will not be possible for them to pay for such experiments.

Presumably when the directors do order new machines such as the three-engined Handley Page at present in use and the three-engined Armstrong-Whitworth Argosies which are on order they only agree to accept them on the condition that they fulfil the performance specified by the designers. Slot and flap wings might be ordered on similar conditions. But they would only be throwing the cost of experiments back onto the designers and constructors, for if the machines did not come up to expectations the air line firm would not pay for them. And therefore the constructors would be taking the risk of failure.

Thus we arrive at a dead-end. Imperial Airways, Ltd., will not or cannot pay for these experiments nor can the aircraft constructing firms. Consequently it becomes evident that the only way in which we can ever arrive at safety in flying is for the Air Ministry to pay for the construction by a number of different firms of a number of different machines with slot and flap wings.

Commercial Possibilities.

There is of course always the possibility of some very enterprising constructor stealing a march on his competitors by taking the risk of producing a slot and flap machine and proving that it is so far in front of all other machines that it must be adopted both for Service and civilian purposes. If anybody does take such a sporting chance and gets away with it he will prove to be a public benefactor and he may possibly make his fortune.

But at present practically every firm in the Trade is quite well supplied with orders for standard machines for the Royal Air Force and for foreign countries. And one can quite understand that the commercial manufacture of aeroplanes pays better than the manufacture of commercial aeroplanes.

After all business is business, nobody is in business for his health, and one might as well play for nothing as work for nothing.

At the finish therefore it all comes back to the Air Ministry. If there is anybody at the Air Ministry with sufficient power and enterprise we can have safe flying twelve months hence. If the time has not found the man we shall go muddling along for another four or five years before we produce a safe aeroplane which has been tested to such an extent that it can be made into a production job with something like certainty of success.

Reliability.

The solution of the problem of reliability is much more a matter of organisation than anything else. We shall never have engines which are 100 per cent. reliable but as the result of experience we shall certainly arrive at engines which are let us say 95 per cent. reliable.

Even with engines of wartime design and construction such as are used on very many Service and civilian aeroplanes to-day in all countries the tricks of the engines are so well known that actual engine failures in the air are very unusual.

Those who operate certain makes of engines regularly know that certain parts give way or wear out after so many hours flying and those parts are renewed before reaching the time limit. The result is that engine failures and forced landings from those particular causes have practically been eliminated. Thus we may quite easily secure engine reliability equal to the reliability of locomotives and steamships.

Reliability in the sense of keeping strictly to time table, as differentiated from reliability against forced landings, is closely connected with reliability of engines but it is also affected by weather conditions and by the manners and customs and habits of the people who run the air lines.

The Weather Obstacle.

In so far as the weather affects the reliability of Civil Aviation there are certain obstacles which can never be overcome. We may ultimately be able to get machines out of aerodromes which happen temporarily to be blanketed in fog and we may be able to get machines into aerodromes similarly afflicted. But one doubts whether we shall make a habit of flying blind through hundreds of miles of fog such as sometimes cover whole areas in all parts of the World. With perfect directional wireless, or with something similar to the Loth Cable, such voyages may be possible but one doubts whether they will become a habit.

Nevertheless with very little improvement in wireless communication and in the landing and handling qualities of machines we should be able to give very much greater reliability of service in fog than is given by steamships or even railways.

Rain hardly affects aircraft at all. And wind only affects them to the extent of making their times faster or slower. But in order to keep to time table we must have aeroplanes whose cruising speeds and top speeds are a great deal higher than they are to-day.

This is a matter for aeroplane designers and engine designers in collaboration. There are very few aeroplanes to-day, even Service aeroplanes, whose speed could not be increased quite materially by the simple process of cleaning up their exteriors and giving a better streamline shape to their bodies.

The other factors which affect reliability are such things as getting machines away up to time and avoiding unnecessary delays at intermediate stops. Certainly in getting away to time Imperial Airways, Ltd., and the German and Dutch air lines have shown that punctuality might be improved. And one's own experience of the delay at Amsterdam caused by waiting for the Dutch flower-growers to deliver their freight and the apparently unnecesarily long stop at Hannover suggests that there may be room for improvement in various parts of the world.

Economy.

The effect of economy on the success of air transport may be regarded both from the passenger's point of view and from the air-line point of view. Speed always costs money. The faster a motor car or a train goes the more fuel it uses and the more it costs. Therefore the passenger who wants to travel by air must be prepared to pay for the extra speed.

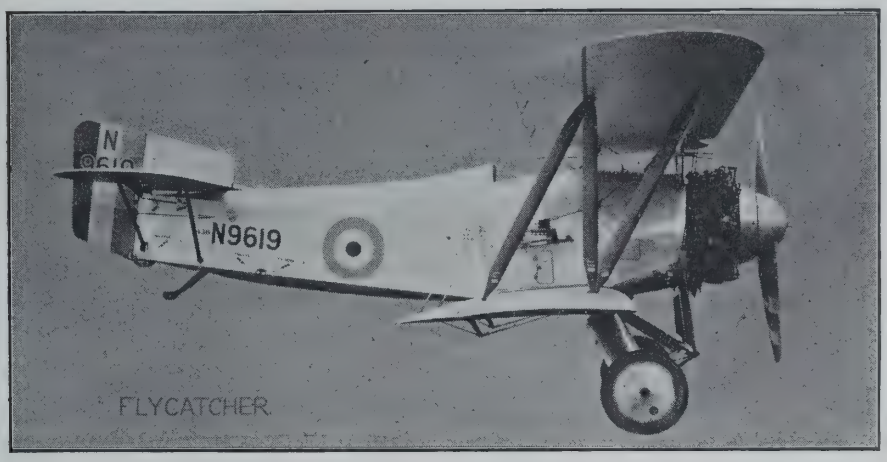
All the same, time is money and there will always be a number of people who, given the necessary safety and reliability, will be prepared to pay quite highly in money for saving time. The man whose earning capacity is a guinea a minute cannot afford to waste 24 hours or even 12 hours over a journey which can be done in eight. And firms who have to send important officials on business will always be prepared to pay for saving their time.

A wise business man will even pay the higher price for rapid air transport by day instead of slow train or boat transport by night if only for the sake of being fresher and fitter for business at the end of his journey. After even four or five hours in the air one does definitely feel exhilarated and better fit for work than one would after half the time spent in the train or a motor car.

Earning Keep.

The other side of the economy question is wrapped up in the running costs of the air transport companies. Up to the present moment we have never yet had a commercial aeroplane which could earn its keep. Some have gone as far as paying their own petrol and oil bill and paying their pilots' wages and even mechanics' wages. But there are none which have also paid for overhead charges and insurance and so forth.

R·A·F· TYPES — No 1·



THE FAIREY "FLYCATCHER"

The "FLYCATCHER" is extensively used by THE ROYAL AIR FORCE, both as a deck landing machine with a wheel type undercarriage, and as an amphibian with a twin float undercarriage.

In its own class this machine is one of the fastest aircraft in the world.

Despite its remarkable "all-out" speed the "FLYCATCHER" is also noteworthy for its slow landing qualities. This is due to the FAIREY PATENT CAMBER ADJUSTING GEAR which is fitted to all machines of this type.

FAIREY AIRCRAFT

One is however told that the three-engined Handley Page, the Hampstead as it is called, can just pay for itself if run all the time with full load. Presumably this only applies when the machine is not hampered by a head wind strong enough to make it take twice as long over a journey as it should do.

If we have in fact got as far as this already we may reasonably hope within the next twelve months to have machines which at even a little less than full load will pay for all their running expenses, overhead charges and interest on capital outlay. Calculations tend to show that the Armstrong Argosies are likely to do so if their performance comes up to expectations.

If we can produce such machines and if they can be made safe and reliable then we are within sight of the success of Civil Aviation.

Spending to Save.

But we cannot achieve success by reliability and economy alone, for without an assurance of safety the air lines will never secure a sufficiency of passengers, year in year out, to make them dividend paying concerns.

A commercial policy of economy which consists in using obsolete machines and obsolete engines is purely false economy.

A Government policy of financing air lines by subsidy when by spending less money safe and economical aeroplanes could be produced is still falser economy.

Therefore boiled down to the utmost we arrive back at the basic fact that if we are to have Safety, Reliability and Economy the Air Ministry must somehow find the money to produce safe machines, so that business men can make them reliable and economical.—C. G. G.

THE AUGUST RACE MEETING.

The August Race Meeting organised by the Royal Aero Club will take place on Aug. 1-3, at Lympne aerodrome, near Hythe.

The following races and events will take place during the three days, the programme each day beginning at 11.00 hours :—

1. *International Handicap.*—Open to all aeroplanes. The race is over a distance of approximately 100 miles, comprising eight circuits of the course. First prize, £150. If five starters, the second will receive £50. Entry fee, £2.

2. *Grosvenor Challenge Cup Handicap.*—The aeroplane and engine must have been entirely constructed in the British Empire. The weight of the engine must not exceed 275 lbs. The entrant and pilot must be British subjects. The entrant must be an individual and not a company. The race is over a distance of approximately 100 miles, comprising eight circuits of the course. First prize, £100; Second prize, £50. Entry fee, £2.

3. *Light Aeroplane Holiday Handicap (International).*—Open to light aeroplanes (single- and two-seaters). The weight of the engine must not exceed 170 lbs. The race is over a distance of approximately 50 miles, comprising four circuits of the course. First prize, £100. If five starters, the second will receive £25. Entry fee £2.

4. *Single-Seater Light Aeroplane Scratch Speed Race (International).*—Open to light aeroplanes (single-seaters). The weight of the engine must not exceed 120 lbs. The race is over a distance of approximately 50 miles, comprising four circuits of the course. First prize, £50. If five starters, the second will receive £20. Entry fee, £2.

5. *Two-Seater Light Aeroplane Scratch Speed Race (International).*—Open to light aeroplanes (two-seaters). The weight of the engine must not exceed 170 lbs. The race is over a distance of approximately 50 miles, comprising four circuits of the course. First prize, £50. If five starters, the second will receive £20. Entry fee, £2.

6. *Private Owners' Handicap (International).*—Open to all aeroplanes, privately owned and registered in the name of an individual. (Aeroplanes owed by clubs will be regarded as "Privately owned" for the purposes of this race). The race is over a distance of approximately 50 miles, comprising four circuits of the course. First prize, £100. If five starters, the second will receive £25. Entry fee, £2.

7. *Inter-Club Race.*—Open to D.H. Moths owned and entered by the Light Aeroplane Clubs. It will be a scratch race over a distance of approximately 50 miles, comprising four circuits of the course. First prize, £100. If five starters, the second will receive £25. Entry fee, £2 per aeroplane.

8. *Certified Performances for Light Aeroplanes.*—Single-seaters and two-seaters. The weight of the engine must not exceed 170 lbs. The Royal Aero Club will give Certificates of Performance in the following classes :—Class I.—Height in a given time—30 minutes. Class II.—Greatest speed over 3 kms. Class III.—Greatest speed over 50 kms. Class IV.—Height. A prize of £25 will be given for the best performance in each Class. Prizes will only be given in Classes where there are at least three competitors. Entry fee, £1 for each Class.

Entry forms for all the above races can be obtained from the Secretary, The Royal Aero Club, 3, Clifford Street, W.1, and it should be noted that all entries close at 17.00 hours on Friday, July 24, 1925.

Members and Associates of the Royal Aero Club and the London Aeroplane Club will be admitted free on presentation of their Membership Cards.

The racing looks like being a very interesting affair, especially as it has a real international flavour about it.

For the first time since the war, German aeroplanes are likely to compete. The German Aero Club intimated that it did not think that in view of feeling it could send over entries unless these were specially invited by the Royal Aero Club. Herr Kleffel, however, came over to represent the German Aero Club at the King's Cup Race and put this view before the Club. He returned to Germany with a Hearty invitation, with the result that probably half a dozen of the German machines which took part in the Rundflug will be seen at Lympne.

As regards accommodation, many people this year are staying at the Grand Hotel, Folkestone, instead of in Hythe. The charges are about the same, as all prices are up for August Bank Holiday week-end. Folkestone is only four miles beyond Hythe, and there is more to do there in the evening.—G. D.

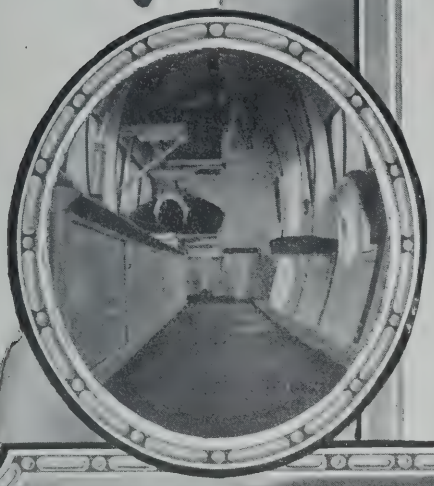


A MODIFICATION.—Mr. H. H. Perry on the "Avro-type"-Airdisco. The machine is of the standard 504K type modified to take the Aircraft Disposal Co.'s Airdisco engine of 120 h.p., which is built up of disposal Renault cylinders and other parts combined with a crankcase and other alterations designed by Major Halford, the designer of the B.H.P. engine.

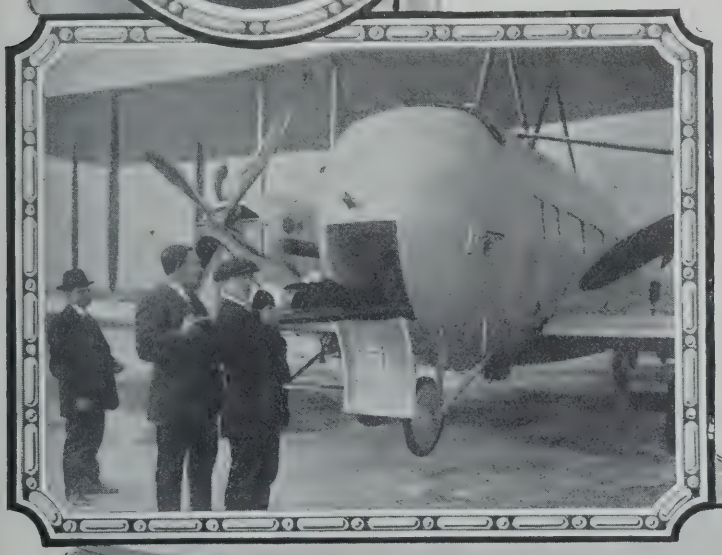
VICKERS LIMITED

AIRCRAFT

of all types for Commercial, Naval, and Military Purposes.

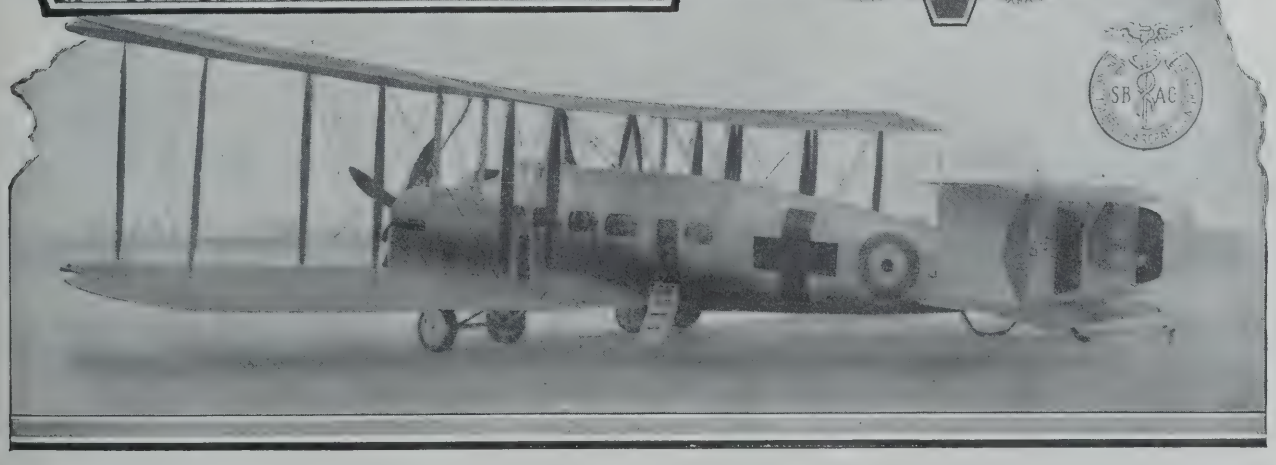


The machine illustrated is the Vickers "VIMY" Ambulance, as supplied to the Royal Air Force for operation in the East, where this type has proved of great value for the rapid evacuation of sick and wounded.



Fitted with twin 450 H.P. Napier "Lion" engines the "VIMY has accommodation for a crew of 2 and Doctor, Nurse and 4 stretcher cases or 8 "sitting up" cases.

Aviation Department,
VICKERS HOUSE,
BROADWAY,
LONDON, S.W.1.
Works: WEYBRIDGE, SURREY.



THE FIRST COMMERCIAL NIGHT MAIL.

The first commercial night air mail service in the World began on July 1, when the first machine of National Air Transport Inc. left Chicago for New York. A section of 1,000 miles of the New York—San Francisco route is flown regularly at night, but it is operated by the U.S. Post Office, whereas the New York—Chicago mails are carried by contract.

The following statement has been issued by the Directors of National Air Transport Inc. :—

At a meeting of the Board of Directors of the National Air Transport Inc., held at the Drake Hotel in Chicago on July 1, authorisation was given for the purchase immediately of ten Curtiss airplanes of the Carrier Pigeon type, and thirty-five Liberty motors, ready for service in October, according to an announcement made here to-day by Mr. Howard E. Coffin, President of the Company, upon his arrival in Detroit. These planes will be used to inaugurate overnight package freight service between Chicago and New York this Fall.

According to Mr. Coffin, for the past thirty days, the Technical Committee, consisting of Charles L. Lawrance, President of the Wright Aeronautical Corporation, Paterson, N.J., and C. T. Ludington, President of the B.B.T. Company, Philadelphia, Penn., which furnished the flood lights for the air mail route, have been making a survey of the performance and rating of the existing types of commercial planes. In the selection of the Curtiss plane, prime consideration was given to manœuverability, pilot's visibility and delivery date.

"The Carrier Pigeon Plane," said Mr. Coffin, "was designed with a special view to the requirements of the U.S. Night mail service, consideration also being given to the difficulty involved in negotiating the Alleghaney Mountains in fog and darkness. The plane is equipped with one 400 h.p. Liberty motor, has a speed of 116 miles per hour, a ceiling of 16,000 feet, a landing speed of less than 50 miles per hour and a cargo capacity of 1,000 pounds with package freight or mail.

"The pilot is seated well behind the wings and well up in the fuselage and has in front of him the cargo compartment which is very stoutly built and completely waterproofed. His fore and aft vision of range lights is unobstructed.

"The top and bottom wings are interchangeable as are the rudder, ailerons and elevators, which reduces to a minimum the number of spare parts needed to be kept in stock.

"The fuselage is of the welded steel tube type now practically standard in America.

"Although there has been no previous announcement in the newspapers," continued Mr. Coffin, "this Carrier Pigeon has been making test flights at night during the past thirty days and its performance indicates unusual dependability and safety to the pilot. No forced landings were experienced during these test flights, but landings were purposely made in some of the emergency landing fields en route in order to demonstrate the manœuverability of the airplane in restricted spaces.

"Very shortly," said Mr. Coffin, "The National Air Transport will invite all aircraft manufacturers in the United States to give consideration to the design of new equipment which will be purchased later.

"A Technical Committee of experienced engineers and pilots will be appointed to make a survey of our requirements as revealed during the first two or three months of operation. A digest of the findings of this committee will be placed in the hands of each manufacturer, together with an invitation for him to submit designs which in his judgment best fit the requirements revealed by flying experience over the actual route itself.

"The National Air Transport does not plan to manufacture flying equipment. It will maintain at all times the 'Open Door Policy' to all aircraft manufacturers in the United States, not hesitating to discard obsolete equipment when new and better types of airplanes for the service are developed and become available. It is our purpose to lend every practicable assistance toward the development and improvement of commercial aircraft."

According to Mr. Coffin, a survey has also been made during the past thirty days, for the National Air Transport, of the European commercial aircraft situation and the tendency there toward the design of multi-motored planes.

"The report which we have just received from Europe," said Mr. Coffin, "indicates that before the end of the present year, six European commercial air transport companies will have in operation or in test, airplanes equipped with three engines. These companies are the following: Royal Dutch Airlines of Holland, Imperial Airways Ltd. of England, French Airlines from Paris to Constantinople Belgian Air lines, Farman Airlines from Paris to Amsterdam, Norwegian Airlines from Holland to Norway and Sweden.

"We are unable at this time to express an opinion as to the probable success of this new European practice, but shall watch it with much interest, hoping to gain valuable experience thereby. It is conceivable, however, that the three-motored plane will increase the package freight carrying capacity which in turn should help decrease the expense of operation per pound of freight carried.

"One of the hazards of mountain flying is the prevalence of fog during certain seasons of the year. European engineers who have been interviewed with regard to this problem express the opinion that the three-engined airplane, equipped with radio direction control, can negotiate a fog en route in perfect safety and without difficulty, thus decreasing the number of scheduled flights abandoned in the past because of poor visibility."

The Directors of the National Air Transport went to Maywood Airport near Chicago to witness the inauguration of the Overnight Air Mail Service between Chicago and New York.

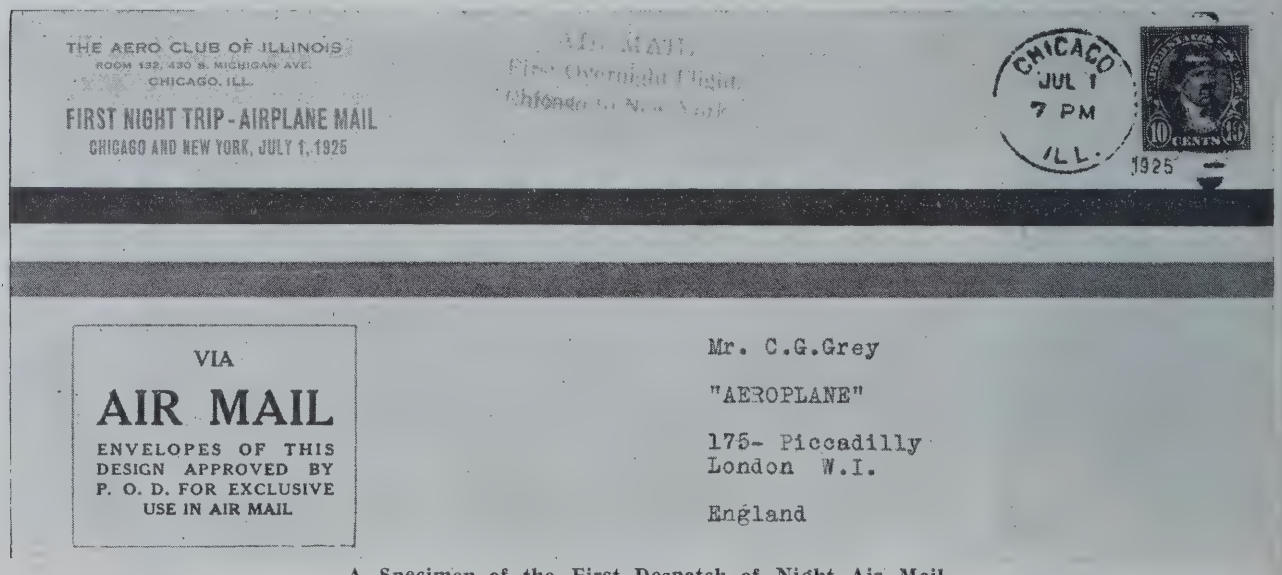
As mementoes of the occasion, letters were sent to Godfrey L. Cabot, President of the National Aeronautic Association, Will H. Hays, former Pastmaster-General, and one of the original proponents of air mail service; Charles Grey, Editor of THE AEROPLANE, London, England; Major Lester D. Gardner, Editor of "Aviation," New York; Postmaster-General Harry S. New; and Robert E. M. Cowie, President of the American Railway Express.

Reports from the United States indicate that National Air Transport Inc., which has its head offices in General Motors Building, Detroit, Michigan, is making quite satisfactory progress as regards organisation.

A well-informed correspondent states that the Ford interests are not actually connected with the N.A.T. The Ford people are confining their activities exclusively to the manufacturing end and are maintaining an inter-factory aeroplane service for their own aims. The officers and directors and shareholders of the N.A.T. are altogether free from Ford interests and have set out to do a much-needed job with their own money confident in their decision that it would be unwise to invite public financial participation at this stage in a pioneer venture of this nature.

There is no doubt that when once the air mail service gets properly going and is advertised to the people it will be adequately used. The metropolitan area of New York represents about ten millions of people and that of Chicago above five million, and naturally the daily volume of first-class mail matter and urgent express matter between the two cities is enormous.

As the journey will be done in one night instead of in a day and a night the time in transit between New York and Chicago on bank clearings will be in fact reduced from two days to one day and so will effect a big saving in interest and in money. The President of one of the largest banks in Chicago stated definitely that he expected that the N.A.T. would save them alone 200,000 dollars a year in interest by expediting the delivery of bank clearings to New York. The same bank president pointed out that cheques or money in transit are classified as "dead money," or in other words funds which are not available for use until credited to the current account at the other end and all collections made, and that the N.A.T. service would cut this daily "float" in halves.



A Specimen of the First Despatch of Night Air Mail.

"GLOSTER"

Telegrams.
"GLOSAIRCRA" CHELTENHAM
"GLOSAIRCRA" WESTCENT LONDON

Telephones.
Nº 1161-2-3-4 CHELTENHAM
Nº 3835 MUSEUM LONDON

THE GLOUCESTERSHIRE AIRCRAFT Co., Ltd.
SUNNINGEND WORKS
CHELTENHAM

DESIGNERS AND MAKERS OF ALL TYPES OF AIRCRAFT

For British and Foreign Governments.



GLOUCESTERSHIRE "GREBE" MACHINES.

WINNERS OF THE AERIAL DERBY, 1921-1922-1923.
HOLDERS OF THE BRITISH SPEED RECORD, 212.2 M.P.H.
RECORD CLIMB OF 19,500 FT. IN 11 MINS. 34 SECS.

(Machine in each of above events fitted with Napier Lion engine.)

Illustrated Catalogue on application.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

There is no reason why the New York-Chicago service should not be a success, for the Post Office has already demonstrated that night flying can be made safe and reliable. Such little difficulties as those of crossing the Alleghany Mountains and other patches of bad land can be solved by the expenditure of comparatively small sums of money in making landing fields and lighting them properly. That is largely a matter for the Federal Government.

Because of its relationship to the national defences any company endeavouring to promote commercial aviation is at this particular period of history a quasi-public organisation. For this reason National Air Transport Inc. are laying themselves out to induce the Federal Government to adopt a sound aircraft policy which in substance is as follows :—

1. Creation in the Department of Commerce of a Bureau of Civilian Aeronautics for the purpose of inspection of aircraft, licensing of pilots and prescribing the rules of the air. Otherwise commercial aviation will suffer from the handicap of a hodge-podge of ill-advised regulations emanating from forty-eight different states.

2. Progressive extension of the air mail services to strategic points—thus developing, at Federal expense, lighted airway routes similar to the one now in existence between New York and San Francisco and all accessible to commercial aircraft companies.

3. Extension and provision by the Federal Government of aids to aerial navigation analagous to those now provided for water navigation, such as beacon lights, emergency fields, meteorological service, radio control, etc.

4. Establishment and maintenance by municipalities of air ports for public use.

5. Adoption by the United States Government of a definite, continuing and comprehensive policy for the development of American Air Power, both Military and Civil.

To aid in cultivating public opinion favourable to such a policy the Directors of N.A.T. are organising a Public Relations Committee composed of twenty-five prominent publishers and editors, without financial interest, of which the Hon. Will H. Hays will be Chairman.

With men like Colonel Paul Henderson as the general moving spirit, Howard Coffin and C. M. Keys as the financial heads and Carl B. Fritsche as general secretary National Air Transport Inc. can certainly succeed and pay its own way if any commercial air line can do so.

R.A.F. INTELLIGENCE.

The London Gazette.

July 7.

GENERAL DUTIES BRANCH.—Flt. Lt. T. M. Williams, M.C., D.F.C., is granted a perm. comn. in the rank stated (July 8); Plt. Off. J. J. Nolan is promoted to rank of Flg. Off., with effect from Mar. 15, and with seniority Sept. 15, 1924.

The following Plt. Offs. are promoted to rank of Flg. Off. :—J. B. Townend (May 15); P. Slocombe, W. J. Pearson, M. M. Miln, C. G. C. Sullivan (June 10); A. E. Paish (June 12); D. J. F. McMillan (June 15).

The following Flg. Offs. are granted the hon. rank of Flt. Lt. :—L. S. Hamilton (Capt., Indian Army, retd.) (June 4); W. F. Humphery (Lt., R.N., retd.) (May 4); R. E. B. Rose (Lt., R.N., retd.) (June 22).

Flt. Lt. J. A. Barron is placed on half-pay, scale B, from July 7 to Sept. 15, inclusive; Plt. Off. A. H. Montgomery takes rank and precedence as if his appointment as Plt. Off. bore date May 19, reduction to take effect from May 25.

The following Flg. Offs. are transferred to the Reserve :—CLASS A.—T. J. Shaw (July 5); D. R. Sharman, M.C. (July 7). CLASS C.—C. A. Mason (May 9); E. K. Clifford (June 27). Plt. Off. J. A. Bramley relinquishes his S.S. comn. on account of ill-health (July 8).

RESERVE OF AIR FORCE OFFICERS.—Plt. Off. R. P. Whyte is confirmed in rank (July 6); Plt. Off. A. M. Mackay is confirmed in rank (June 16). (Substituted for the notification in the *Gazette* of June 23, 1925); Plt. Off. F. H. Pidgeon is transferred from Class C to Class A (June 10); Flg. Off. H. A. Mason is transferred from Class A to Class C (July 7).

MEMORANDUM.—2nd Lt. E. J. W. Timson is deprived of his hon. comn. on conviction by the Civil Power (May 22).

Appointments.

Week ending July 13.

GENERAL DUTIES BRANCH.—Squadron Leader T. W. Elsdon, to Station H.Q., Donibristle, 15/7.

Flight Lieutenants C. E. Barraclough, to No. 7 Sqdn., Bircham Newton, 13/7. N. Keeble, D.S.C., D.F.C., to R.A.F. Depot on transfer to Home Estab., 23/6. F. W. Walker, D.S.C., A.F.C., to R.A.F. Base, Leuchars, on transfer to Home Estab., 2/7. P. W. S. Bulman, M.C., A.F.C., to remain at Experimental Section, R.A.E. W. A. B. Savile, to R.A.F. Depot on transfer to Home Estab., 18/6.

Flying Officers (Hon. Flt. Lt.) D. S. Cairnes, to Record Office, Ruislip, 17/7. R. B. Fleming, to Record Office, Ruislip, 6/8. L. E. Maynard, to R.A.F. Depot, 16/7. F. R. Lines to R.A.F. Depot, 13/7. T. B. Fenwick, to R.A.F. Depot on appointment to a S.S. Comn., 9/7. A. R. Wardle, to M.A.E.E. (Flying Boat Development Flt.), Felixstowe, 9/7. J. T. Hall, to Station H.Q., Donibristle, 15/7. G. A. Hadley, to H.Q., Coastal Area, 13/7. F. G. Cator, to No. 207 Sqdn., Eastchurch, 7/7. H. M. Mellor, to No. 443 Flight, Leuchars, 11/7. H. E. Falkner, to A. and A.E.E., Martlesham Heath, 24/7. E. J. Rossiter, to R.A.F. Base, Leuchars, 6/7. C. W. S. Chalmers, to No. 2 Sqdn., Manston, 9/7. C. Walker, to R.A.F. Depot on appointment to a S.S. Comn., 1/7.

Pilot Officers J. C. Don, to No. 99 Sqdn., Bircham Newton, 15/7. H. D. Gunton and B. E. Moody, to R.A.F. Depot on transfer to Home Estab., 23/6. H. R. F. Baxter, to R.A.F. Base, Calshot, 6/7.

MEDICAL BRANCH.—Flight Lieutenants A. C. Ransford, to Electrical and Wireless School, Flowerdown, 2/7. M. Coghlan, M.B., to R.A.F. Depot, 5/7. P. A. Hall, M.B., B.A., to R.A.F. Hospital, Cranwell, 13/7. Flight Lieutenants (Dental) P. P. Hogan and S. A. McCormack, to R.A.F. Depot on appointment to Temp. Comns., 1/7. M. J. O'Reilly, to H.Q., Cranwell, on appointment to a Temp. Comn., 1/7.

Flying Officers W. A. Beck, M.B., D.P.H., to School of Army Co-operation, Old Sarum, 1/7. P. D. Barling, M.B., to A. and A.E.E., Martlesham Heath, 30/6.

STORES BRANCH.—Flight Lieutenant W. A. Glasper, to No. 4 S.D., Ruislip, 26/7. Flying Officer A. J. Redman, D.F.C., to Station H.Q., Donibristle, 15/7.

ACCOUNTANT BRANCH.—Flight Lieutenant L. de L. Leder, to I.A.A.D., Henlow, 6/7. Flying Officer B. G. Drake, to Station H.Q., Donibristle, 15/7. Pilot Officer G. Goodall, to A. and A.E.E., Martlesham Heath, 6/7.

The following appointments were made by the Admiralty on July 11 :—

Lieuts. (Flg. Off., R.A.F.) F. M. R. Stephenson, to *Furious*, and for flying duties to No. 443 Flight (June 13); and A. G. Elliott, to *Furious*, and for flying duties in No. 461 Flight (July 13).

ROYAL MARINES.—Lieut. (Flg. Off., R.A.F.) J. L. L. Rees, to *Furious*, and for flying duties in No. 443 Flight (June 15).

A British Seaplane Flight in Italy.

The five Fairey seaplanes of, No. 481 Flight, R.A.F., that were expected at Naples on July 8, at 13.00 hours from Malta, failed to appear. At 15.00 hours an Italian flying boat which had gone to meet them reported that four were stranded in the Gulf of Salerno for want of petrol. A vessel was despatched to convey petrol, and later the fifth, which had struggled on to Sorrento, was found and filled up with petrol.

Eventually all five reached Naples, whence they are proceeding to Obertello, Sardinia, Rapallo, and Lago Maggiore. The aviators are being entertained by the Italian Air Force, this being a return for the recent visit of an Italian bombing squadron of four Fiat B.R. biplanes to this country.

It is presumed that the flight met with a strong head wind which caused them to run out of petrol short of their destination.

The Times correspondent at Naples, in a message dated July 8, states :—

The squadron of five Fairey seaplanes under the command of Wing Cdr. W. L. Welsh reached Naples yesterday afternoon from Syracuse. Four of them were forced to descend in the Bay of Salerno and the fifth off Sorrento, owing to lack of petrol. The authorities here at once sent off a vessel with the necessary supplies, which enabled the British pilots to complete their journey.

This is apparently the squadron referred to in THE AEROPLANE of July 8, as being under the command of Flt. Lt. Slatter. Wing Cdr. W. L. Welsh, D.S.C., A.F.C., is the Officer Commanding (temporarily) the R.A.F. Mediterranean.

H.M.S. Hermes for China.

A *Reuter* message from Malta in *The Morning Post* of July 13 states :—

The aircraft-carrier *Hermes*, which left Malta on July 3 to rejoin the Fleet, returned yesterday evening unexpectedly. It is understood that the vessel has been ordered to China, and that she is now taking in the necessary munitions.

The Fleet Air Arm.

The Times of July 8 states :—

The aircraft-carrier *Argus*, Capt. S. L. Willis, of the Atlantic Fleet, is to give an exhibition of flying in Torbay during the next three days for the instruction of naval cadets. The aeroplanes will be attended by the destroyers *Tower* and *Telemachus*, detached from the Atlantic Fleet target and minelaying services respectively.

The minesweeper *Carstairs*, Lt.-Cdr. E. C. Thornton, D.S.C., seagoing tender to the battleship *Thunderer*, will bring to Torbay, in the course of her second summer cruise, a number of special entry cadets to witness the demonstration. The *Carstairs* will return to Dartmouth on Saturday, and leave again on Monday for Falmouth and the Scilly Islands.

A Fatal Accident.

The Air Ministry regrets to announce that as a result of an accident on the Qara Dagh above village of Malula, East of Kirkuk, Iraq, to a D.H.9a of No. 30 Squadron, Hinaidi, on July 8, Flg. Off. Marcus Glanfield Penny, R.A.F., the pilot of the aircraft, and Lieut. George Donald Edward Heather, The Loyal Regiment, attached to 2nd Cavalry Regiment, Iraq Levies, were killed.

The R.A.F. at Bisley.

The shooting for the Chief of the Air Staff Cup took place at Bisley on July 2. Teams of eight competed. Highest Possible Score, 1,600 points. Result : 1, Halton, 994; 2, Cranwell, 979; 3, Gosport, 950; 4, Sealand, 945.

The R.A.F. Pistol (Automatic) Championship—Highest Possible Score, 105 points—took place on July 3 with the following result : 1, Halahan Challenge Cup, Wing Cdr. Grant Dalton (Uxbridge); 2, Flt. Lt. Pearce (Cranwell); 3, Flg. Off. Stainforth (Duxford); 4, Flt. Lt. Calvey (Uxbridge).

The Methuen Cup for nominated rifle teams of eight, all



RACE ROUND ENGLAND

SATURDAY, JULY 4th.

LONDON - BRISTOL - SHOTWICK
BLACKPOOL - HARROGATE - CROYDON

523 MILES.

This race was open to all entrants for the King's Cup Race who had the ill-fortune to be eliminated in the first circuit owing to fog which prevailed during the early hours of the event.

FIRST - - - D.H.51

120 *h.p. Airdisco Engine.*

Entered by Air Commodore J. G. Weir, C.M.G., and flown by Colonel The Master of Sempill.

AVERAGE SPEED - - 101.11 M.P.H.

SECOND - - D.H. "MOTH"

27—60 h.p. Cirrus Engine.

Entered by Sir Charles Wakefield, Bart., and flown by Mr. Alan J. Cobham.

AVERAGE SPEED - - 87.27 M.P.H.

FOURTH - D.H. "MOTH"

27—60 h.p. Cirrus Engine.

Entered by Capt. Geoffrey de Havilland, O.B.E., and flown by Capt. W. L. Hope.

AVERAGE SPEED - - 82.67 M.P.H.

THE DE HAVILLAND AIRCRAFT CO., LTD.
STAG LANE AERODROME, EDGWARE, MIDDLESEX.

Telegrams: "Havilland, Edgware."
Telephone: Kingsbury 160-163.

Services, 10 rounds rapid per man at 300 yds., 10 rounds snap at 300, 10 rounds deliberate at 300, 10 rounds with movement 600 to 100, Highest Possible Team Score, 1,600 points, was won by the Small Arms School with 1,247. The R.A.F., Halton, scored 975.

The R.A.F. Revolver Twenty Cup was won by Wing Cdr. Barton (Cranwell); Wing Cdr. Grant Dalton was second, Flt. Lt. Calvey third and Flg. Off. Drummond (Cranwell) fourth.

Capt. E. H. Robinson (late R.A.F.) who won the King's Prize at Bisley in 1923, won the Wimbledon Cup at Bisley on July 11 with the highest possible score, 35 at 600 yards. Capt. Robinson scored seventeen consecutive "bulls."

Army Co-operation.

The Times of July 11 states :—

Close consideration is being given to the subject of Army co-operation with the Royal Air Force in training and operations and a course will be held in November and December for majors and captains only as an experiment. The course will be held at the R.A.F. School of Army Co-operation, and the officers to attend will be selected by the War Office from lists of those recommended by the commands.

The Rhymes of Rufus Ruderbar.

[*The Morning Post,* in a leader upon the R.33 mishap, states that in the matter of mooring out airships there is yet much to learn, and a great deal could be learned by noting the handling of submarines and surface ships.]

According to *The Morning Post* the R.A.F. could learn a host
Of useful things by studying the sea;
The methods that are there applied to mooring, in a three-knot tide,
A submarine might well be tried
For mooring in a gale R.33.
The speeds of tides and gales, I fear, the *Post* forgets; and 'tis not clear
Exactly what the leader really means:
It would appear it wants to urge that when the roaring gales emerge
All airships underneath the surge
Shall swiftly plunge like giddy submarines.
The Morning Post might just as well let out a most colossal yell
When a cruiser or destroyer breaks away
And say such things could never be if but the Royal A.S.C.
Administered the King's Navee
'Mid joyful cries of "'vast," "make fast," "belay."
No cause need render up the ghost
Till championed by *The Morning Post.*

More World's Records.

On June 16, Engineer Grasé, Chief of the Scientific Department of the N.V. Nederlandsche Vliegtuigenfabriek "Fokker" put up four new world's records over 100 km and 200 km., carrying a useful load of 500 kgs. (1,102 lbs.) (excluding pilot and fuel) on a standard Fokker D.XIII single-seater scout (450 h.p. Napier Lion engine).

The speeds over the 100 km. and the 200 km. courses were 266.6 km.p.h. (165.7 m.p.h.) and 265 km.p.h. (164.7 m.p.h.).

These speeds beat the existing World's records for a machine carrying a load of 750 kgs. as well as 500 kgs.

The previous records were held by M. Doret, on a Dewoitine monoplane, with 231 and 226 km.p.h. over 100 kms. and 200 kms. respectively, with 250 kgs., and by M. Descamps, on a Koolhoven—DeMonge monoplane, with 221 and 217 km.p.h. over the 100 kms. and 200 kms. respectively, with 500 kgs. useful load.

Wanted a D.H.9.

Can any reader of THE AEROPLANE tell the Editor where a D.H.9, 9b or 9c can be bought at a low price? The standard price for new re-conditioned machines is rather above what the would-be customer is prepared to pay.

The London Aeroplane Club.

The two D.H. Moth machines acquired by the London Aeroplane Club will, it is hoped, be handed over within the next ten days.

Two pilot instructors, Mr. F. G. M. Sparks and Mr. G. T. Witcombe, have been engaged.

Owing to the large number of applications the list of flying members has now been closed. It is hoped, however, to elect additional members as soon as it is ascertained to what extent the machines are used by the present membership.

The following Committee has been elected to control the London Aeroplane Club :—Wing Cdr. T. O'B. Hubbard, M.C., A.F.C., R.A.F., Lieut.-Col. F. K. McClean, A.F.C., Major R. H. Mayo, Co. The Master of Sempill, and Capt. C. B. Wilson, M.C.

Mr. F. G. M. Sparks, who is first pilot, comes from the Berkshire Aviation Tours, where he has had a very considerable amount of flying experience of the type required for the post of instructor at the London Aeroplane Club. He will perhaps be remembered as the comparatively unknown entrant of one of the early Aero Club Meetings at Croydon who arrived from nowhere on a Renault-Avro, and after annexing three of the four prizes disappeared into nowhere again. As a matter of fact at the time he was flying for a joy-riding firm in Swansea and had flown all the way to Croydon and back for the purpose of entering for the races.

Mr. Witcombe, the second pilot, has for a long time been acting as instructor at the Bristol Flying School, where he has assisted in passing a large number of R.A.F. Reserve pilots through their course with great success.

The Committee is remarkable in that all its members have actually flown as pilots.

A Long German Flight.

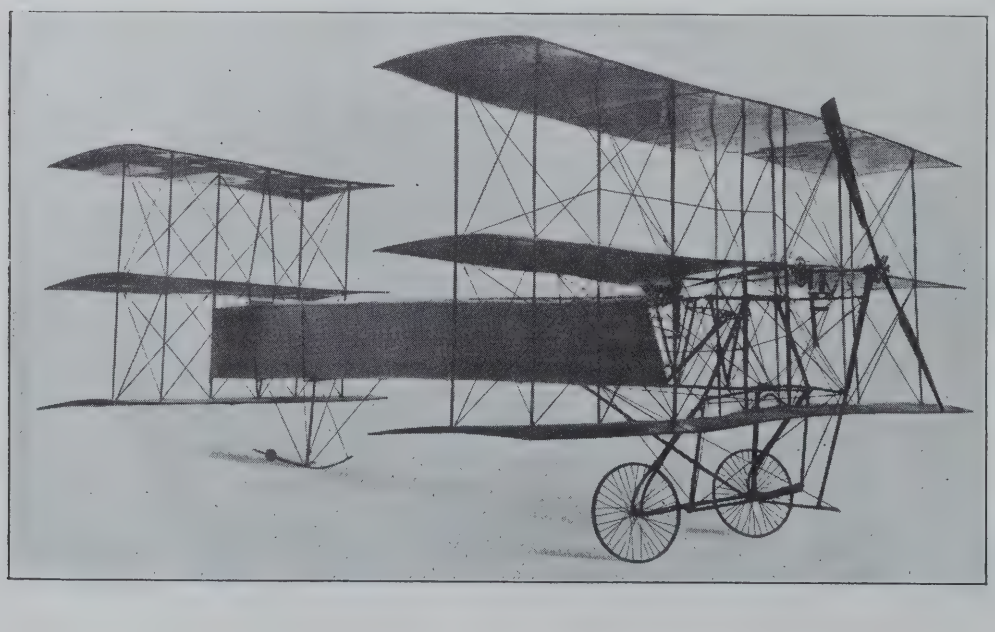
On June 20, a three-engined Junkers monoplane, piloted by Herr Horn, and carrying seven journalists and four members of the Junkers firm, left Berlin on a flight round Germany. The route followed was via Dantzig—Rugen—Copenhagen—Dorsten—Zurich—Munich—Vienna—Leipzig—Dessau—Berlin, a total distance of 3,850 kms., which was covered in 5 days and 15 hours 32 mins. flying time. The machine used was constructed in Sweden.

The Avro Triplane at the Science Museum.

A. V. Roe and Co., Ltd., have just presented to the Science Museum, South Kensington, the triplane on which Mr. A. V. Roe in June, 1909, made the first flight on an all-British aeroplane with an all-British engine. This machine it may be noted was not the first built by Mr. A. V. Roe. His first aeroplane was a biplane fitted with a 24 h.p. Antoinette engine, and on this machine he made his first flight in June, 1908. This was at Brooklands, and immediately after his first success he was requested to leave that place.

The machine now presented to the Science Museum was built in a stable at Putney and was fitted with a 9 h.p. J.A.P. engine with a chain drive to the tractor air-screw. Trials with it were carried out on Lea Marshes, where the local authorities employed a bailiff to watch Mr. Roe and to prevent flying taking place. Mr. Roe usually got up too early for the bailiff, who, however, caught him flying one morning. Proceedings were instituted in the Police Court to restrain him, but were dropped as a result of M. Bleriot's flight across the Channel.

A photograph reproduced shows the machine as it will now appear. It is precisely as in its original state except for the engine, which has by now been irrecoverably lost.



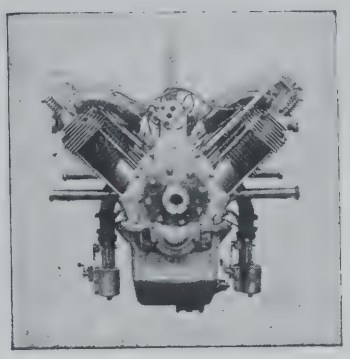
A NEW ACQUISITION BY THE SCIENCE MUSEUM.—Mr. A. V. Roe's first triplane on which with a 9 h.p. J.A.P. engine successful flight was achieved in 1909. The photograph shows the machine as it will appear in the Aeronautical exhibit at South Kensington. Can anybody trace the original engine or one like it, to make the exhibit complete?

BRITISH ADC AIRCRAFT

THE AVERAGE SPEED OF THE WINNING MACHINE: D.H.51., Pilot, Col. The Master of Sempill, fitted with our new 120/140 h.p.

"AIRDISCO" ENGINE

was 101 m.p.h.



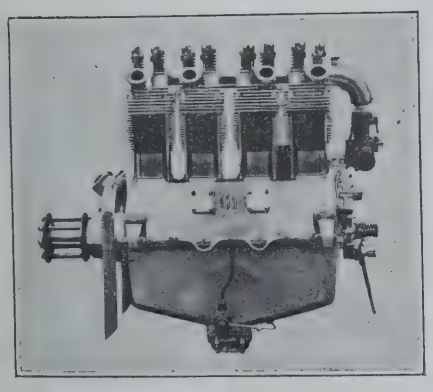
120/140 h.p. "AIRDISCO" Engine.



¶ Handicap Race promoted by the Royal Aero Club.

Course: 523 miles in a circuit, CROYDON—BRISTOL—SHOTWICK—BLACKPOOL—HARROGATE—CROYDON.

The "AIRDISCO" and "CIRRUS" engines, although not designed and built for speed, have again demonstrated the highest efficiency and reliability.



27/60 h.p. "CIRRUS" Engine.

Mr. A. J. Cobham, who was SECOND, on the D.H. "MOTH" fitted with our new 27/60 h.p.

"CIRRUS" ENGINE

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AERIAL SURVEYING.

"Aerial Surveying by Rapid Methods." By B. Melvill Jones and J. C. Griffiths. (Cambridge University Press. 16s. net.)

This book is a record of the experimental research into the problems of rapid and economical survey by the process of aerial photography carried out between 1920 and 1923, at Cambridge. This research was inspired by Captain Hamshaw Thomas, O.B.E., largely as the result of his experience of aerial survey in Palestine during the war, and was directed in the main by Prof. B. Melvill Jones, A.F.C. (Francis Mond Professor of Aeronautics at Cambridge). The bulk of the actual experimental work involved was undertaken by the late Major J. C. Griffiths, who was unfortunately killed in an aeroplane accident in October, 1923. The work was done with the aid of aircraft and equipment lent for the purpose by the Air Ministry.

The R.A.F. aerodrome at Duxford was the base of operations, and the actual piloting work was carried out by R.A.F. pilots.

In a foreword Prof. Jones explains that owing to the death of Major Griffiths before the book went to press, some appreciable portion of it has been written without direct consultation with Griffiths. Prof. Jones emphasises the fact that but for Griffiths the book could not have been written, and that he is certain that, even in those parts compiled after Maj. Griffiths's death, the general ideas would have received his concurrence.

The Scope of the Book.

The book does not profess to deal with the whole subject of aerial surveying. The actual research with which it deals was confined to a definitely limited object—that of investigating methods by which rapid surveys of large areas of imperfectly developed country could be carried out economically with a degree of accuracy sufficient to be useful. It is pointed out in the preface that maps may be required for a wide variety of purposes, and that, therefore, the value of any particular method of mapping depends on the use to which the resulting map is to be put. Thus it is impossible to say that any one method of producing a map is definitely the best for all purposes, and in any particular case a decision as to the best method can only be made after reviewing all the circumstances of the case.

Obviously one very important factor in coming to a given decision is an accurate knowledge of what results can be obtained from the possible methods.

The work at Cambridge here recorded is essentially an exploration of what can be attained by one particular method of aerial survey. This method is one depending on the ability of a pilot to fly accurately straight and level on a series of pre-determined courses at a pre-determined height.

The Accuracy of Flying.

Given a reasonably good photographic lens, and a camera accurately levelled, a vertical photograph gives an accurate plan view of any level surface below it whose scale can be determined if the focal length of the lens and the height of the camera above the ground are both known accurately.

Therefore, if the pilot of an aeroplane can fly a straight course at a uniform height, keeping the axis of the camera truly vertical, a series of over-lapping photographs will produce an accurate strip map of the country over which he has flown. If he can fly a whole series of accurately parallel courses at a distance apart not greater than the width of country shown in each strip photographed, a whole series of strips can be joined edge to edge, to form a " mosaic " map.

It is perfectly obvious that no pilot can fly either perfectly straight, perfectly level, or at an absolutely uniform height. The practical question, fortunately, is how nearly can he approach to perfection in these respects, and with what degree of accuracy can a map be compiled from photographs taken under practically attainable conditions. This book answers these questions, and answers them in a manner which shows conclusively that maps of quite a high order of accuracy can be produced by very simple methods under reasonably suitable conditions.

An Eminently Practical Attitude.

The temptation to attempt rather a summary than a review of the book is almost irresistible. The work is very far removed from the usual type of professional disquisition on a subject of very considerable complexity. Without any looseness in the treatment of the questions involved it is none the less of an extremely practical nature, and it is written in such a way that no one who really wishes to understand it can blame anyone but himself if he fails.

It is characteristic of the attitude of the authors that their whole scheme is based on the possibility of training pilots to fly accurately without the aid of any special instruments other than those normally fitted to all aeroplanes. They admit the usefulness of two special appliances—a gyroscopic rudder control to relieve the pilot of the constant strain of maintaining a true course, and of a gyro fixed azimuth as a method of saving the time which would otherwise have to be allowed for the compass to settle down after turning at the end of one straight flight, and before starting on the next one.

But they insist on the importance of teaching the pilot to dispense with these aids—on the very sound ground that either instrument may fail, and that for commercial purposes, one cannot afford to waste a day's flying because a delicate instrument has functioned erratically or not at all.

Practically the work described falls into two sections—one concerned with the problems of accurate flying, the other with the methods of using photographs resulting from an attainable accuracy of flight, to produce maps.

The process in both cases was that of flying over and photographing a stretch of country for which accurate maps are available, and of deducing from a comparison of the photographs and the map the nature of the errors either in the actual flying or in the resulting aerially-produced map.

It is impossible here to go into details in regard to the results of these experiments. It is sufficient to say that it was found that pilots could rapidly be trained to fly amazingly accurately, even without the aid of the gyro-rudder control. It is essential however that the pilot be free to concentrate his whole attention on this problem of flying straight and level, and not to be bothered with the working out of courses, speeds and so forth.

A Trial Survey.

Having established the possibility of accurate flying, the work of constructing a mosaic map of an area of some 200 square miles was taken in hand. This involved devising a routine of work relieving the pilot of any other care than that of flying to instructions. This routine is fully described and is both simple, practicable, and elastic, as is shown by the fact that a really astonishing good map of 225 square miles was the result of two flights each of about three hours' duration.

The extraordinarily simple methods used for the actual compilation of the mosaic from the original photographs—included the adjusting of certain fixed points to their correct position and the averaging out of the remanent errors, and the high degree of accuracy thereby attained—can only be appreciated from the original description.

A mosaic of this type gives an extremely detailed, and reasonably accurate, map of a relatively small area. Provided that an accurate ground survey of sufficiently close mesh is available each individual mosaic can be kept free from serious errors and each mosaic can be joined up accurately to its neighbours. But if there be no such ground survey there is a possibility of systematic cumulative errors creeping in and of great inaccuracy in the relative positions of different mosaic units.

Aerial Control Surveys.

There may be cases where the provision of an accurate ground survey of the necessary closeness of mesh is impracticable. The research was therefore extended to investigate the possibility of providing an aerial control survey. The general scheme was that of relying upon the ability of pilots to fly straight and level over long distances. Thus a series of parallel flights, starting from known spots say 10 miles apart, are made and photographs are taken at regular intervals along those flights. This series of flights is then crossed by another series at right angles to the first.

Assuming that both the speed of the aeroplane and the interval between exposures is constant, a series of photographs at equal intervals will be obtained, which will divide the area involved into a series of squares. If the assumption as to constancy of speed is accurate, the corners of the squares as determined from these photographs may be taken as fixed points for the control of the individual mosaics.

Moreover, if the detail given by vertical photographs is not required, or the expense entailed in covering the whole dictrict by vertical photographs cannot be faced, the whole area within the squares can be covered by a combination of simultaneous vertical and oblique photographs, and moreover can be mapped therefrom by quite simple methods.

The actual manufacture of a map by this process was not undertaken at Cambridge. The trials were confined to an exploration of the accuracy with which the required constancy of aeroplane ground speed could be attained and of the accuracy with which positions could be located by these methods. Here again accuracy much greater than might reasonably be expected was found to be attainable so that the method would appear to be one eminently suitable for use in undeveloped and unexplored countries.

There is a pleasant absence throughout the whole book of any exaggerated claims for the particular methods described. The authors have kept to well within their expressed object of investigating the possibility of making useful aerial surveys rapidly and economically in cases where more accurate and more expensive methods are impracticable.

They do stress—and quite rightly—one great point in favour

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of the aerial photographic survey. A photographic mosaic map gives a wealth of detail, which practically can be obtained in no other way. The geometrical accuracy of that map, however, cannot be very high unless a fairly close-meshed system of fixed points can be obtained by ground survey. But once a sufficiently accurate and adequate series of fixed points is available, the photographic map can be corrected to an extent depending only on the completeness of the ground survey.

It is immaterial whether the ground survey is made before or after the photographic survey. Thus the aerial survey may be used in undeveloped districts as a first measure. Its geometric accuracy may be relatively small, but it gives all the detail that is necessary for the earlier stages in the development of the region. As the development proceeds, the need for geometrical accuracy will increase. It can be met by ground survey devoted only to the accurate location of fixed points shown on the existing map, which can thus be corrected accordingly, without any need for further photographic work, or of ground methods for the filling in of detail.

It remains only to be said that the book is excellently written, illustrated and produced, and that Prof. Jones may be congratulated on having produced a worthy memorial to his friend, Major Griffiths.—W. H. S.

A New Development of the Rotor-Aerofoil.

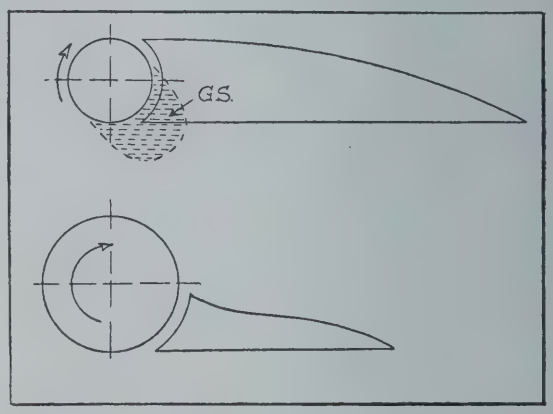
Some considerable time ago, when the Flettner rotor-ship was receiving a good deal of attention in the daily Press, the possibility of applying the rotor principle to an aeroplane was discussed in these pages. From the general principles of the appliance it was shown that the rotor in its simplest form could not conceivably be employed because of the impossibly high resistance that would be produced. It was, however, suggested that some form of streamlined rotor might conceivably overcome this difficulty by suppressing the inevitable high resistance of the unfaired cylinder itself.

Both in America and in Holland tests have been made with a rotor recessed into the leading edge of a streamline or wing-like profile. In neither case were the results remarkably good. The Dutch tests—which were never meant for more than a preliminary exploration—showed that the spinning of the rotor improved an initially bad section by increasing the lift, but even with the improvement so effected the results obtained were only such as to suggest that further experiments might be worth undertaking. Ing. Karl Gligorin, once of the Albatros Werke, and recently of the Aerodynamical Departments of the Scientific Institute of Sesto San Giovanni, has now produced a combination of rotor and following surface for which somewhat startling results are claimed. Owing to the fact that his own account of the theory underlying this development is available only in a translation into English which appears to have been made without any very accurate knowledge of the subject on the part of the translator, it is a little difficult to be certain of reproducing accurately the inventor's own idea.

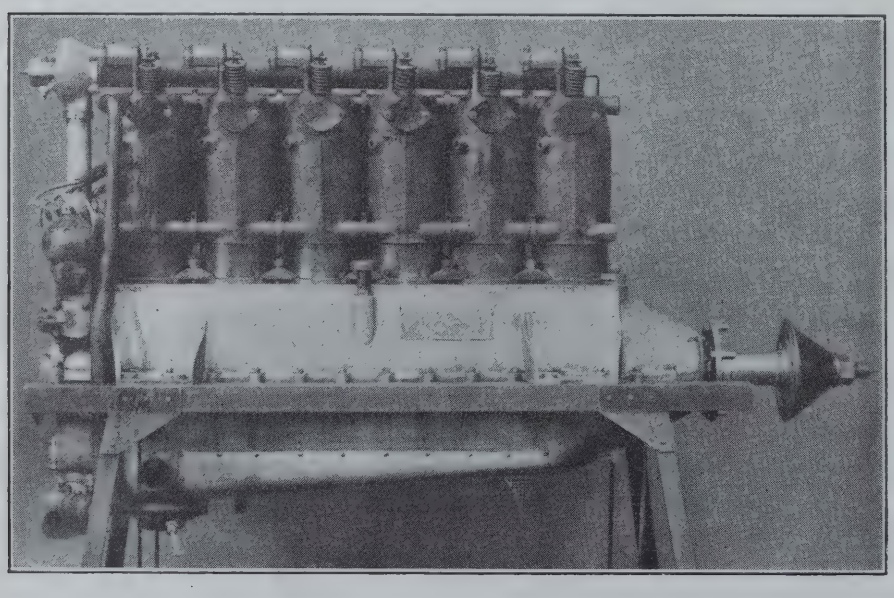
But in general it may be said that the lift of a plain rotor is the result of the creation of a region of reduced air pressure below the horizontal diameter and somewhat to the rear of the axis of the cylinder. The streamlining of the rotor attempted in America and Holland cuts into and destroys this low pressure area, and so destroys the lift which would be caused by the rotor.

The attached sketch reproduced from the original description indicates this. Here the low pressure region due to the rotor alone (G. S.) is shown shaded and the way in which the streamlining infringes on this area is indicated. Herr Gligorin's arrangement involves a streamlining tail of special shape and of relatively small thickness and chord relatively to the rotor diameter. It is shown diagramatically in the lower figure herewith.

Certain figures taken from tests of a model of this arrangement show a ratio of L/D of 35.2. Apparently these tests were made with the "chord" of the "wing" horizontal, and a constant ratio of rotor speed to wind speed. Under these conditions the drag coefficient is constant, but the lift coefficient develops a sudden peak at one particular wind speed, so that at this peak the L/D ratio rises to 42.4. Unfortunately the dimensions of the model tested, the ratio of rotor speed to air speed, and the units wherein the results are expressed cannot be discovered. Nevertheless the result is somewhat startling and if verified is likely to be of some considerable importance—certainly worthy of further experimentation.



It does not appear to be in the least astonishing that Ing. Gligorin's arrangement should give better results than the arrangements hitherto tested. In the article which was referred to in the opening of this note it was pointed out that to produce a large lift from a small diameter rotor very high rotary speeds would be necessary. A rotor which can be streamlined in the ordinary way by any usual form of wing must be of small diameter, and therefore will produce little effect except at very high speeds—when it will absorb much power. The Gligorin arrangement does not look in the least like the conventional idea of a streamline, but if it is considered apart from preconceived ideas it would seem quite possible that a smooth streamline flow behind the rotor may occur round the tail instead of the very disturbed motion which would occur behind the bare rotor.



A NEW GERMAN ENGINE.—The Junkers L.5 engine of 240 h.p. This is a normal six-cylinder vertical engine very similar in general lay-out to the small air-cooled L.1 type of 65 h.p., but with water-jacketed cylinders.

It is also not altogether free from a resemblance to the B.M.W. engines, one model of which has for some time been built by the Junkers firm.


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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per day.—Monday, 23; Tuesday,, 20; Wednesday, 22; Thursday, 31; Friday, 24; Saturday, 31; Sunday, 21.

IMPERIAL AIRWAYS LTD.:

London—Paris—Zurich; London—Ostende—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 84, passengers 407, freight 13 tons.

AIR UNION:

Paris—London: Machines 54, passengers 323, freight 8½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 22, passengers 93, freight 2 tons.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 9, passengers 26.

SPECIAL MACHINES:

PRIVATE:

De Havilland Hire: Machines 3, passengers 2.

Total number of trips by British machines: 87, carrying 409 passengers. Foreign machines: 85, carrying 442 passengers.

Comparative Figures:

For week ending July 12:

Machines, 172; Passengers, 851; Crews, 222; Total personnel, 1,073.

Corresponding week, 1924:

Machines, 173; Passengers, 741; Crews, 214; Total personnel, 955.

Corresponding week, 1923:

Machines, 111; Passengers, 542; Crews, 185; Total personnel, 727.

Corresponding week, 1922:

Machines, 145; Passengers, 326; Crews, 235; Total personnel, 561.

Corresponding week, 1921:

Machines, 115; Passengers, 426; Crews, 143; Total personnel, 569.

Corresponding weeek, 1920:

Machines, 108; Passengers, 233; Crews, 126; Total personnel, 359.

Croydon Notes.

The shortage of machines with which Imperial Airways is faced at the moment is nothing short of ridiculous. It is entirely the fault of the Board of Directors and their cheese-paring, dividend-before-all policy.

They are well into their second year, and yet they have not got one single new machine which they themselves ordered. It is true that they have a new Avro Andover and a three-engined Handley Page, but these are Air Ministry conversions of old types and would have been built even if there had been no such institution as Imperial Airways.

It seems scarcely possible to believe that a concern which is receiving one million pounds of the nation's money to further the progress of air transport, should in their second year of running still be using almost exclusively machines belonging to three private companies, all of which were in use by those Companies for at least one year and some of which were in use there for four years and are six years old. It would be funny if there were no chance of its being tragic.

The three-Jaguar Handley Page will be tested in three weeks' time with luck, but this will be the first new machine actually ordered by Imperial Airways and even this is only a modification of a machine which appeared at the Paris Aero Show in 1919.

The Armstrong-Whitworth Argosies, the first really new machine of a radically different type, are not likely to be on the service before April next year, when the Company will have been running for two years. Is this a record of which the Directors can be proud? Questions in Parliament should be the next item on the programme.

Meanwhile droves of happy Goliaths continue to arrive. The Anglo-American petrol people, under the command of Mr. Hewlett, recently filled up one of these machines with such speed that from the moment of hitting the ground on the inward journey to the moment of leaving it on the outward was only 27 minutes.—G. D.

Air Mails.

The Postmaster-General announces that a new edition of the Air Mail Leaflet embodying particulars of the present Summer Services has been issued. A copy may be obtained free on application at any Head or Branch Post Office, or from the Secretary (Air Mails), General Post Office, London, E.C.1.

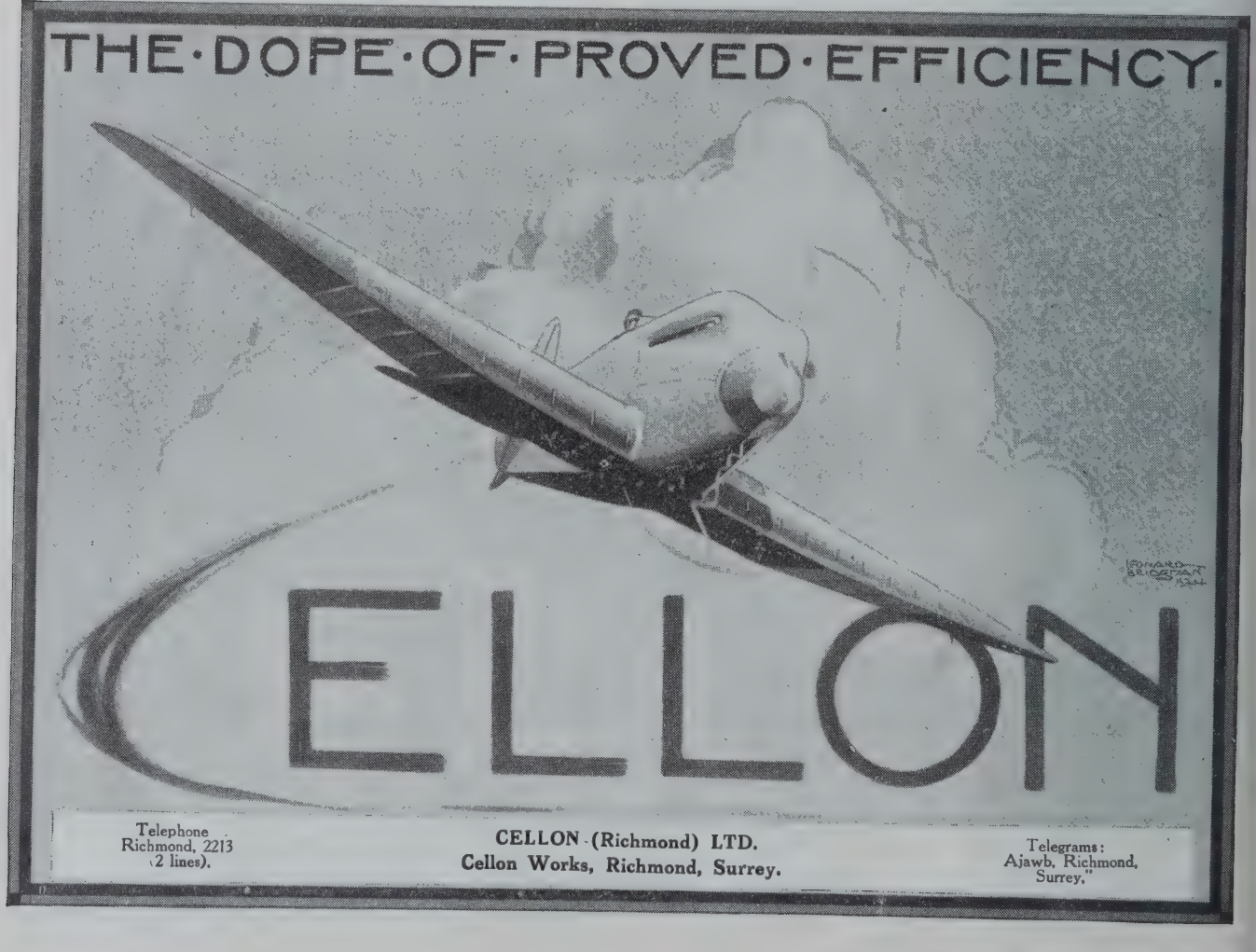
The rates of special air fee payable on Air Mail letters for the United States of America have been slightly reduced, and, as shown in the leaflet, are now as follows:—

1st Zone 5d. per oz., 2nd Zone 10d. per oz., 3rd Zone 1s. 2d. per oz. A recent test in the case of five consecutive Air Mail despatches from London showed times of transit from London to San Francisco as follows:—8½ days (on three occasions), 9 days, 9½ days; average 9 days. The time of transit by ordinary route all the way is 10-12 days.

Aeronautics at Wembley.

At the invitation of the Air Ministry a number of representatives of the Press inspected the aeronautical exhibits at Wembley on July 9. These exhibits, which deal with both the Service and the Civil side of Aviation, are distributed between the British Government Pavilion and the Palace of Housing and Transport (late Palace of Engineering).

In the Government Pavilion the exhibit is divided into two separate sections. One of these is called a Royal Air



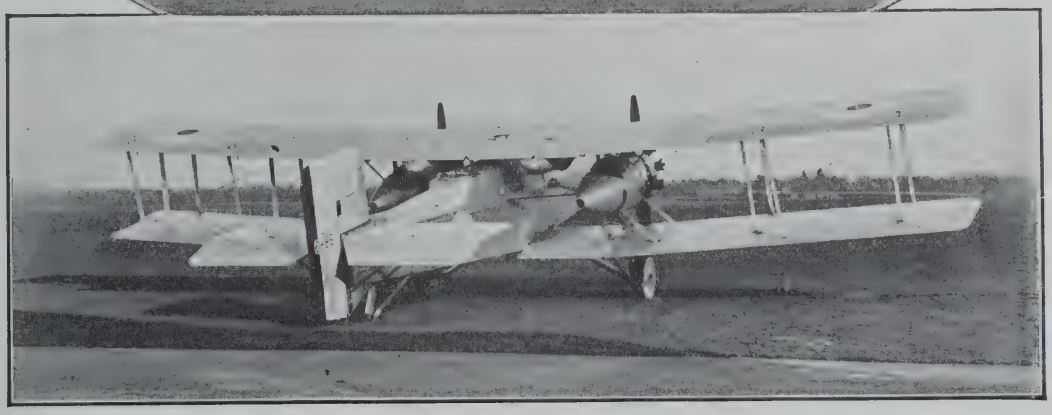


THE Bugle Mark I. High Performance Twin-Engined Day Bomber. Entirely of Metal Construction.

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Force exhibit and the other a Civil Aviation exhibit. In the R.A.F. section the most attractive feature is perhaps the set of scale models of aeroplanes arranged in chronological order ranging from the original Wright biplane up to some of the most modern service and civilian types. There was a similar exhibit last year, but the models are now much better arranged to give the idea of continuous development, and the collection has been improved by the inclusion of a number of more recent types.

Another very fascinating exhibit in this section is the working model wind-tunnel wherein the visitor may see for himself the way in which the pressure is distributed on a model of an aeroplane wing and may watch the changes which occur as the angle of incidence is altered, and the collapse of the lift when the stall is reached.

In the Civil section of the same building there is a most interesting aerial survey exhibit. This comprises samples of Canadian survey work of a most instructive and interesting nature, together with examples taken from the recent survey of the Irrawady Delta which proved so successful. In addition there are a number of samples of both survey and of purely photographic work carried out in this country by the Aircraft Operating Company in conjunction with Aerofilms Ltd. Although these latter examples of the uses of aerial photography deal with relatively restricted areas, the fact that they deal with British conditions such as are familiar to the majority of the spectators will probably render them much more attractive and enable them to give a clearer idea of the possibilities of aerial survey to the general public. Certain of these minor British surveys are shown with the corrected photographic mosaic overlaid on a large scale ordnance map, and these provide a most convincing proof of the accuracy which is possible in aerial mapping when an adequate ground control survey exists.

A very interesting instrument, known as the Camera Plastica, which enables accurate contour determination to be made from overlapping vertical photographs, is worthy of note. Unlike most of the appliances which have been devised for a similar purpose this is both simple and compact.

In the exhibit in the Palace of Housing and Transport there are to be found a number of complete aircraft. These include a Bristol ten-seater and a Vickers Vulcan shown by Imperial Airways Ltd., a number of military machines, including a Martinsyde F.4, a D.H.9a., and a stripped S.E.5 shown by the Aircraft Disposal Co. Ltd. A Parnall Pixie and Mr. Raynham's 1923 Lympne light aeroplane—presumably shown by the Air Ministry—and a series of most excellent aerial photographs shown by the Surrey Flying Services Ltd., The Central Aerophoto Co., and by the Aircraft Operating Co. and Aerofilms Ltd. jointly. Particularly interesting is the series of educational photographs dealing with Human Geography and with Industry, which the latter two firms, in conjunction with George Philip and Sons, are now producing for the use of schools.

Probably the most fascinating exhibit here, however, is the Reid Reaction-time Indicator exhibited by the Royal Aero Club. As is probably well known, this is an apparatus by which it is claimed that the aptitude of any individual for piloting an aeroplane can be determined—so far as "hands" are concerned, without the need for taking the individual into the air. Although one is inherently inclined to doubt the infallibility of any artificial method of assessing inherent piloting ability there does not seem to be any doubt that the Reid apparatus will detect the ham-handed type with absolute certainty and will give a very good indication as to whether a given individual can or cannot be educated out of a tendency in this direction.

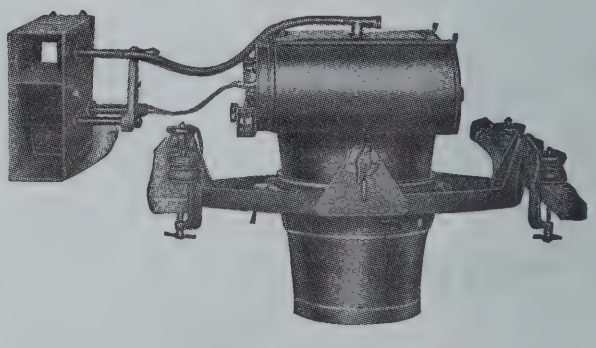
Visitors to Wembley are tested on the stand at a small fee and a fairly large number of diagrams for these individuals, together with data as to age, occupation and so forth have already been collected. Previously a fair amount of data had been obtained, but almost exclusively from persons who either were pilots or who had some appreciable air experience. The records from members of the general public—most of them with no air experience at all—are extremely interesting. Despite inevitably wide differences in the reaction time between those to whom the operation of a joy-stick and rudder-bar are familiar and those to whom these implements are quite strange, it is possible almost without previous knowledge of the apparatus to separate the diagrams into promising and unpromising ones.

It may be said that the aeronautical exhibits of this year are excellently arranged and extremely interesting. Naturally this particular visit scarcely provided an opportunity for a close examination of the objects to be seen, and a more detailed description of certain of the more noteworthy items is therefore postponed until a less hurried survey can be undertaken.

The visit terminated with an excellent lunch at the Garden Club. After lunch Sir Phillip Sassoon, Under-Secretary of State for Air, in proposing the toast of Aviation, expressed

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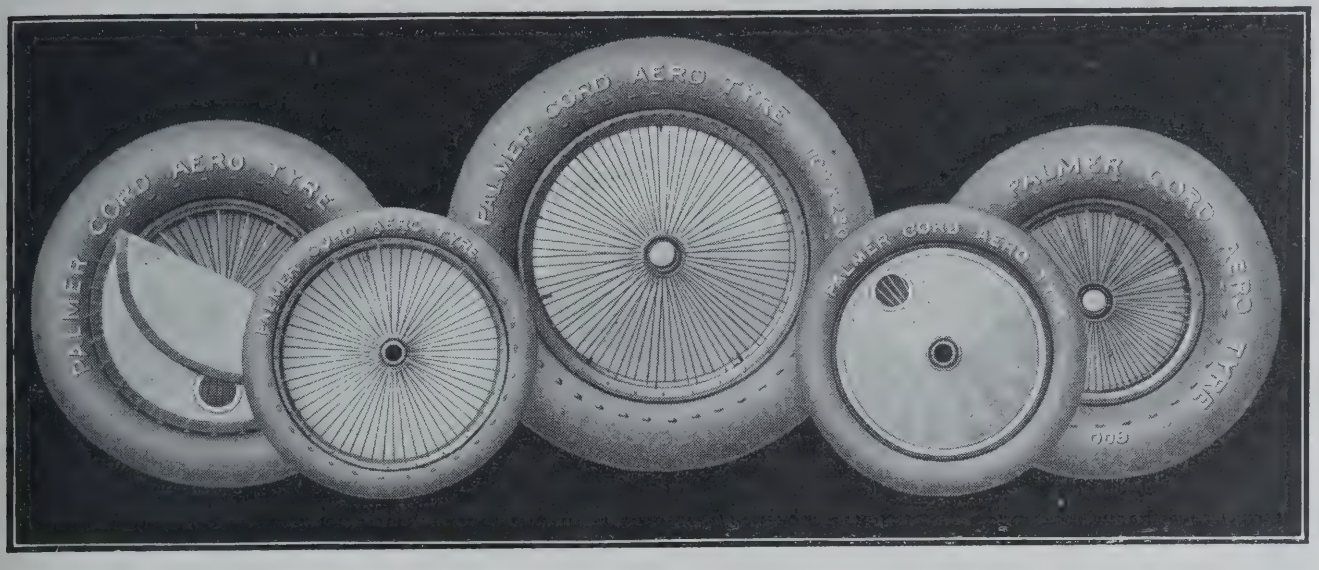


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375×55	168	111.12	25.4	Central	700×100	99	178.	38.89	132/46	1000×150	201	185.	60.32	125/60
300×60	16	111.12	25.4	Central	,,	112	150.	38.09	Central	,,	210	185.	60.32	Central
,,	17	72.39	12.7	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	,,	147	178.	55.	Central	,,	149	185.	55.	Central
,,	138	130.	38.09	Central	750×125	77	178.	44.45	132/46	,,	155	220.	66.67	Central
575×60	21	160.	28.	Central	,,	92	185.	55.	135/50	,,	166	185.	55.	125/60
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,,	34	150.	31.75	104/46	,,	112	150.	38.09	Central	,,	137	250.	80.	Central
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50	,,	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	,,	85	185.	55.	Central	1100×220	134	220.	66.67	Central
,,	79	178.	44.45	Central	,,	161*	185.	55.	135/50	,,	136	250.	80.	Central
,,	100	178.	38.09	132/46	,,	163*	185.	66.67	135/50					
,,	101	178.	31.75	132/46	,,	169†	185.	55.	135/50	1250×250	133	250.	80.	Central
700×100	77	178.	44.45	132/46	,,	211*	185.	60.32	135/50	,,	154	304.8	101.6	Central
,,	92	185.	55.	135/50	1000×150	131	220.	66.67	Central	1500×300	115	304.8	101.6	Central
,,	95	185.	55.	Central	,,	150	185.	55.	Central	,,	126	304.8	152.4	Central
,,	96	178.	55.	132/46	,,	167	185.	55.	125/60	1750×300	139	400.	152.4	Central
					,,	174	250.	80.	Central					

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†Wheel No. 169 is fitted with Ball Bearings.

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S/NK (240)

the indebtedness of the Air Ministry to the Press for their many services in the past, and his hope that they would continue them in the future, more immediately by giving adequate prominence to the aeronautical exhibits which they had seen that morning.

Air Vice-Marshal Sir Sefton Brancker then proposed the health of the Guests, coupled with the name of Major C. C. Turner, who, in returning thanks, paid a well-merited tribute to Mr. C. P. Robertson of the Press Section of the Ministry, for the efficient manner in which he maintained cordial and mutually satisfactory relations with the representatives of the Press.

Mr. Raynham Goes East.

The Aerial Survey Company Ltd., of 3, Copthall Buildings, E.C.2, the Directors of which are Colonel C. H. D. Ryder, C.B., C.I.E., D.S.O., and Mr. Ronald Kemp, notify that Mr. F. P. Raynham, one of the best-known of British pilots, besides being one of our very earliest aviators, is sailing for the East per *S.S. Narkunda*, on the 17th next to co-operate with Mr. Ronald Kemp in the survey work which the firm have in hand. Everybody in this country will be sorry to lose Mr. Raynham who has always been one of our most popular pilots although apparently unpopular with Fate judging by the fact that he has never won one of our big races or competitions although he has always flown at least as well as the winner. Everybody's good wishes will go with him on his new venture. One gathers that the Aerial Survey Co. Ltd. have just entered into a large contract for aerial survey in Sarawak and North Borneo as the result of the success of the Irrawaddy Delta survey which was done last year.

An Empire Air Route.

Proposing the toast of the Visitors at a lunch of the Empire Parliamentary Association at the House of Commons on July 8, Mr. Amery, Secretary of State for the Colonies, said that Newfoundland, next to the Irish Free State, was the nearest oversea dominion to this country and that the distance from Newfoundland to the British Isles was little more than half the distance to New York.

With the development of air communications and the coming of the airship we should begin to realise that Ireland on the one hand and Newfoundland on the other were the natural bridgeheads across the Atlantic.

Tenn. and O.

Apparently some confusion exists in aeronautical minds between Dayton, Tennessee, which has acquired the surname of Monkeyville on account of the prosecution of a harmless scientist for having taught the Darwinian theory, and the other Dayton in the State of Ohio. The easiest way to remember the difference is to recollect that Dayton, Tenn., is endeavouring to prove that man was not produced by a process of evolution from the monkey, whereas Dayton, Ohio, spends most of its time endeavouring to prove that all airplanes, or heavier-than-air ships, have been evolved by a process of evolution from the Wright Brothers' flying machine.

It is true that the Wright machine first hopped in the vicinity of Dayton, O. But unfortunately its design proved to be a dead-end type from which nothing could be evolved. The two towns are some 300 miles apart but each seems to be possessed by its own fixed idea.

Sir Arthur Shipley, the well-known zoologist, commenting on the Monkeyville trial in *The Weekly Dispatch*, remarked "It will be the making of Dayton, where nothing has ever happened before." Apropos Dayton, Ohio, one may paraphrase this remark by saying that the Wright airplane was the making of Dayton where nothing has happened since,—except of course such irrelevant things as the National Cash Register Company and the Delco concern, which only affect aviation indirectly, and McCook Feld which is really not Dayton at all but a high-browed colony sent there from or by the U.S. Army.

Dayton, Tenn., is doing its best to prove that there has been no evolution. Dayton, O., has proved that its own pet product was incapable of evolution.

The correspondent who drew one's attention to this confusion of ideas, says "I am under the impression that from the point of view of aviation the village of Dayton corresponds to, let us say, Stockton and Darlington in the world of railways." So far as the evolution of the airplane is concerned the analogy would be better if one said that Dayton, O., corresponds to what the Stockton railway might have been if there had been no Darlington.

So now one hopes that there will be no further confusion.—C. G. G.

The Michelin Cup Competition.

On June 30 the Michelin Cup Competition closed for 1924-25. On June 29, Capt. Arrachart covered the 1924-25 circuit on a Bréguet XIX (450 h.p. Renault engine) at an average speed of 152.492 km.p.h. (95 m.p.h.), but on June 30, Capt. Pelletier Doisy on a Spad 61 (450 h.p. Lorraine-Dietrich engine), succeeded in covering the 2,835 kilom. course in 15 hours 8 mins. at an average speed of 187.32 km.p.h. (116 m.p.h.).

The course for 1924-25 was Valenciennes—Mourmelou—Metz — Strasbourg — Dijon — Avord — Clermont-Ferrand — Nimes —Toulouse—Bordeaux—Angers—Le Bourget—St. Inglevert—Valenciennes, which had to be covered at the highest average speed counting the 15 compulsory landings.

Some French Notes.

A new Breguet biplane, the 25C.2, has been tested successfully, at Villacoublay. In general arrangement and outline it resembles the famous 19A.2, but it has less surface and a bigger armament. There are seven machine-guns in all, four fixed forward guns, two firing through the airscrew, and two in the top plane, twin guns on a Scarff ring over the back-gunner's seat and one gun ring aft, under the fuselage.

The four-engined Farman Super-Goliath (four 450 h.p. Farman engines), the fuselage of which was exhibited at the last Paris Salon, has made its official tests in the hands of M. Bossoutrot. Over the speed course it made a speed of 175 km.p.h. (108 m.p.h.), and in the climbing test, reached 5,000 m. (16,400 feet), in 53 mins.

The twin-engined Lioré et Olivier B.N.12 (two 400 h.p. Lorraine-Diétrich engines) also shown at the Salon, has passed all its tests successfully and is about to be ordered in considerable quantities.

Also the Koolhoven F.K.31 (400 h.p. Jupiter engine) is now being turned out in series by De Monge, for the French Army. M. Descamps, the chief pilot of the De Monge firm, recently tested an F.K.31 before the Dutch military authorities at Soesterberg, and with full military load on a standard machine of the latest type, put up the following climbs :—To 3,000 m. (9,840 feet), in 8 mins. 18 secs.; to 5,000 m. (16,400 feet), in 16 mins. 55 secs.; and to 6,000 m. (19,680 feet), in 24 mins. 22 secs.

The Institution of Aeronautical Engineers.

An Extraordinary General Meeting of the members of the Institution of Aeronautical Engineers will be held on Thursday, July 23, at 7 p.m., at the Engineers' Club, Coventry Street.

The object of this meeting is to authorise the taking of such steps as are rendered necessary by the otherthrow of the proposed amalgamation of the Institution with the Royal Aeronautical Society and the decision to carry on the work of the Institution as an independent body.

Certain modifications in rules, and a regrading of the subscription, are among the more important proposals.

All those members who have opposed the amalgamation, and desire the continuance of the institution, will recognise that this meeting is one of the first importance, and should make every possible effort to attend.

Supermarine Sports.

The Supermarine Sports and Social Club held a successful meeting on July 1 at Southampton.

Six crews entered for the Easton Challenge Cup presented to the Club by Mr. Easton, solicitor to the Company, to be competed for annually as an inter-departmental four-oar galley race.

The race was rowed in two heats and a final over a course which included two sharp turns.

The crews represented the Drawing Office, the Fitter-Erectors, the Boat Shop, the Boat Shop (B), the Machine Shop and the Joiners.

The result was (1) Boat Shop A, (2) Machine Shop, (3) Drawing Office. The winning crew were: N. Jeans (bow), B. Egerton (No. 2), W. Bessant (No. 3), H. Hunt (stroke), and D. Bird (cox).

A four-oar gig race was to have been rowed between crews representing R. Kemp Ltd. and the Supermarine Wiremen Erectors' Shop for prizes presented by Cdr. Bird and Mr. Kemp. Unfortunately Messrs. Kemp's crew were compelled to scratch.

Squadron Commander Bird, late R.N., was the judge, with Mr. H. C. Biard as assistant judge, and Mr. Victor Scott-Paine was starter.

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Contributory Causes.

Petrol :—The winner of the King's Cup Race and the winner of the Croydon Stakes both used Shell Spirit. Moreover twelve of the other competitors also chose Shell Spirit, including Sq. Ldr. Jones, who was second.

Major Hemming used B.P. petrol and Mr. Cobham used Pratts

Oil :—As usual in all big air events all the competitors used Castrol Oil and this is the fourth King's Cup Race to be won on Castrol. Sir Charles Wakefield's financial generosity to aviation is only equalled by the success and excellence of his firm's products.

Dope :—Thirteen out of the fifteen entrants were doped with Titanine, including the two winning Siskins. Titanine Dope was used on all competitors to take part in the Croydon Stakes.

Tyres :—The winning Siskin was fitted with Dunlop Tyres and wheels of the wired-on variety. These were only made a few days before the race. It is the first pair of Dunlop aeroplane tyres ever made, so far as one is aware, and their origin is not far to seek as the entrant of the machine is the Chairman of the Dunlop Company.

All other machines were fitted with Palmer Tyres and one believes that every other aeroplane in this country which has tyres is fitted with Palmers.

Ignition :—So far as one could find, every competitor used K.L.G. plugs, including the Editorial Talbot which had to travel nearly as fast as some of the aeroplanes to compete with the unholy hour decided for the start,—and it won with half an hour to spare.

Twelve machines were fitted with magnetos and two with coil ignition. All magnetos used were those manufactured by the British Thomson-Houston Co. Ltd., and the machines gaining first, second and third places, and, in fact, all machines completing the course were those using magnetos. The two Moth machines used coil ignition and it will be remembered that this type of aeroplane won fame in a flight to Zurich and back when it was fitted with a B.T.H. magneto.

Instruments :—Nobody seems to have used navigating instruments other than Smiths. In fact one does not hear much of any other make at present. But there are rumours of a very live instrument firm about to rise in the firmament.

New Companies.

Light Planes (Lancashire) Ltd.—Private Co. Registered July 3. Capital, £500 in 1s. shares. Objects :—To acquire the assets of the unincorporated association known as the Lancashire Aero Club; to promote and assist aerial navigation and locomotion, to encourage the study of aeronautics, to develop the sciences connected therewith, in particular, to promote, maintain and conduct centres of training in aeronautics, together with aerodromes flying machines, sports grounds, etc. The subscribers (each with one share) are :—F. (?) Williams, "Thornlea," Fairfax Avenue, Didsbury, Manchester, motor engineer. J. F. Leeming, Owlfen, Bowden, Cheshire, spinner and manufacturer. The first Directors shall be the members of the Committee of the above Club as at the date of the Company's formation. F. (?) Williams signs as a Director. No qualification required. Solicitors :—Goultry and Goodfellow, 6, Brown Street, Manchester.

PERSONAL NOTICES.

Deaths.

GLASSON.—On July 5, at Chicago, of pneumonia, Capt. George W. T., late C.A.T.O., England, aged 32.

Capt. Glasson was well known in Civil Aviation as one of the Civil Aviation Traffic Officers. He was under Major Greer at Hounslow in 1919 and went with him to Croydon. In 1922 he went to Lympne in charge of the aerodrome.

In May of last year he was seriously injured in a motor-car accident at Sandgate. On his recovery he went to America on a visit to his wife's family. It seems probable that the low state of his health as the result of his accident would not allow him to hold his own against pneumonia.

To his young wife and son one offers deep sympathy on behalf of all his friends concerned with aviation.

PENNY.—On July 8, at Malula, Iraq, as the result of a flying accident, Marcus Glanfield Penny, Flg. Off., No. 30 Sqdn., R.A.F.

Mr. Penny was a Lieut., R.A., and transferred to the R.A.F. in January, 1922. He was trained at No. 4 F.T.S., Abu Sueir, and posted to No. 30 Sqdn. in March, 1923.

Marriages.

LEWIS—ROBERTSON.—On July 9, at St. George's, Hanover Square, Gwilym Hugh Lewis, D.F.C., son of Mr. and Mrs. Hugh Lewis, St. Davids, Noctorum, Birkenhead, to Christian, second daughter of Mr. and Mrs. H. W. Roberston, Fintry, Brook, Surrey.

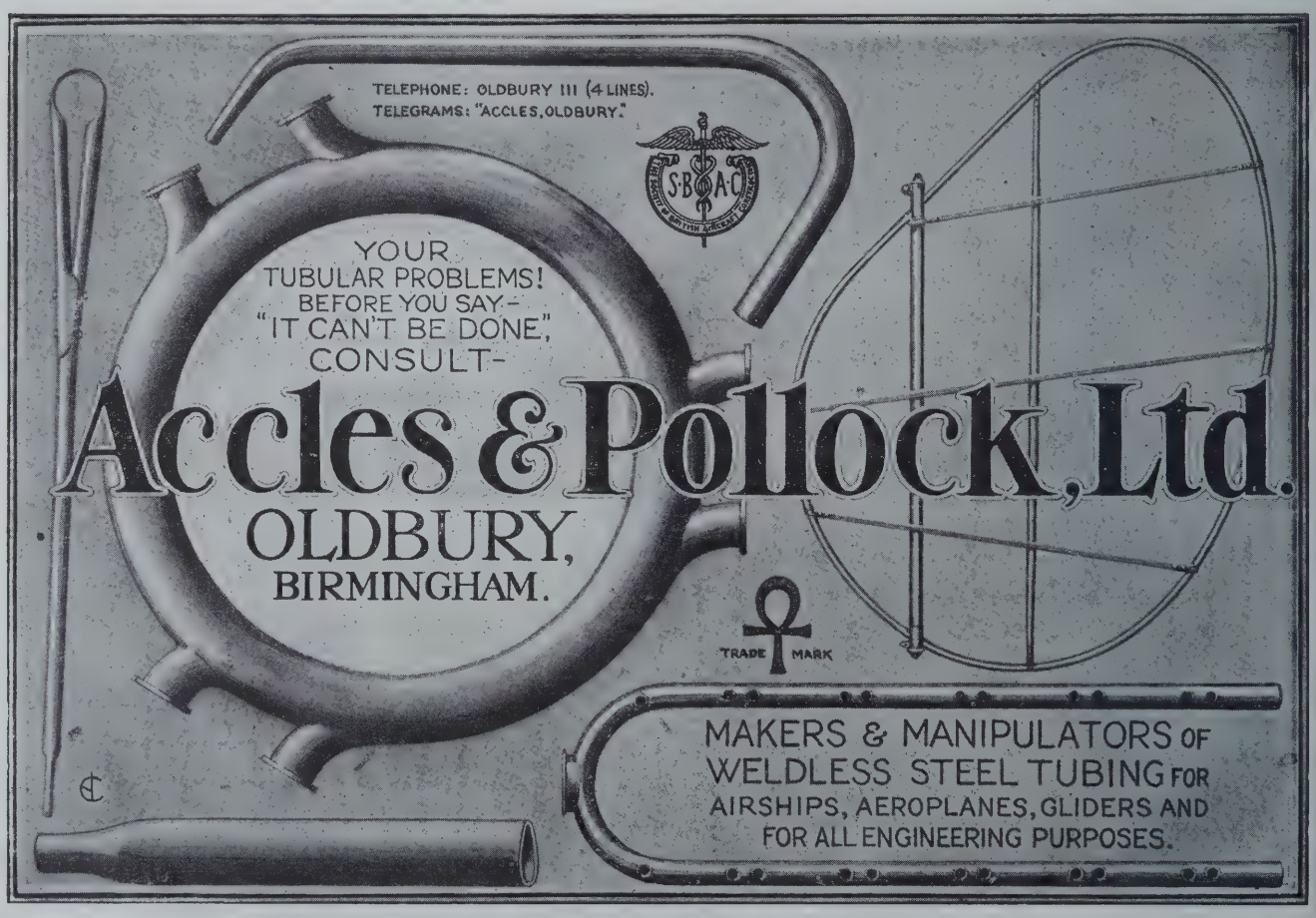
BIRKBECK—MOXON.—The marriage took place on July 11, at St. Simon Zelotes, Lennox Gardens, between Flt. Lt. R. A. Birkbeck, R.A.F., and Miss Mary Neville, only daughter of Mr. and Mrs. R. Moxon.

Forthcoming Marriage.

RUSSELL—PATTINSON.—The marriage arranged between Mr. G. W. R. Russell, R.A.F., elder son of Mr. J. J. Russell, High Sheriff of county Louth, and Mrs. Russell, of Ballygasson House, Dunleer, and Priorland House, Dundalk, and Katherine Mary, only daughter of Alderman Robert Pattinson, J.P., of Southfields, Ruskington, will take place on July 23, at Ruskington.

Birth.

PALLIN.—On July 3, at the Government Hospital, Jerusalem, to Brenda, wife of George R. A. Pallin, 14 (A.C.) Sqdn., R.A.F.—a son (Patrick).



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ON CIVIL AVIATION AND SERVICE EFFICIENCY.

For some reason or another the Desert Air Mail from Cairo to Baghdad has always appealed to the imagination of Service and civilian people alike. Whether it is that the phrase "the desert mail" has in it a smack of poetry which summons up memories of Kipling's "Overland Mail," or whether it is that the notion of an All-Red Air Route to India—which is not and never can be All-Red—appeals to that kind of commercial patriotism exemplified in the person whom Stalkey characterised as the "jelly-bellied flag-flapper" one does not pretend to say, but the fact remains that the air mail to the East does appeal as an idea to a variety of differently constituted people. And undoubtedly for purely political reasons there is good cause for organising an air line to India with a possible extension to Australia.

Given proper ground organisation, which is the factor on which air lines really depend far more than on aeroplanes and engines, an air line to the East may be of considerable commercial value in time of peace and of still greater military value in time of war—either when we are fighting the Japanese in the Pacific or when that august body known to the irreverent soldier in India as "the Coon Council" has reduced Home Rule India to a state of chaos and when our remote kinsmen the Pathans have been let loose on a joyous looting expedition down the defenceless valley of the Ganges and the simple English soldier has to go in and clean up the mess.

Therefore by all means let us have an air line to India. But let us set about it properly. Let us have it either as a commercial proposition or a proper Service job.

These reflections are produced by a series of questions and answers in the House of Commons on June 12 which read as follows :—

CIVIL AIR SERVICE, EGYPT AND INDIA.

Major-General Sir Frederick Sykes asked the Secretary of State for Air whether he is now in a position to state whether the commercial operation of the air route between Egypt, Iraq and India is now again contemplated by the Air Council; and, if so, when it is proposed to bring such a policy into effect?

The Secretary of State for Air (Sir Samuel Hoare): His Majesty's Government have approved in principle the institution of a civil air service between Egypt and India. This service will replace the service at present carried out by the Royal Air Force between Egypt and Iraq at fortnightly intervals for strategic and training purposes. A concrete scheme for a service to be operated weekly each way between Kantara and Karachi is accordingly under consideration, and civil aviation undertakings have been invited to submit early proposals for such a service. As regards the last part of the question, I regard the development of this important link in our Imperial communications as a matter of urgency, and, whilst it is impossible as yet to give an exact date for its inauguration, I am most anxious that it should, if possible, come into operation during the winter 1925-26.

Captain Brass: Will the right hon. Gentleman assure the House that this new air route will not be started until we have enough landing grounds *en route* to make it quite safe?

Sir S. Hoare: Certainly, I have myself had an opportunity of sur-



THE CAPITAL OF SCOTLAND.—A photograph of Edinburgh taken by the Surrey Flying Services. The Castle is seen in the centre with Princes Street running along above it. The Scott memorial is seen just above the Castle.

veying some of the landing grounds, and I can certainly give that assurance to my hon. and gallant Friend.

Captain Benn: Is it the intention to grant a subsidy for this purpose?

Sir S. Hoare: Yes, a subsidy will be necessary, but it is intended that the subsidy should be found out of the savings to be made on the defence side of the Middle East question.

The Sting in the Tail.

As is usual in most things to which objection may be taken, the sting of this is in the tail. If Sir Samuel Hoare's last answer means anything—and one has never yet known Sir Samuel say anything that had not a very precise and cogent meaning—this means that money out of the Middle East Vote which has hitherto been spent on the Royal Air Force is in future to be handed over to the Directors of Imperial Airways Ltd.

Part of the agreement between the financiers of Imperial Airways Ltd. and the British Government is that as the said financiers put up enough money to run Imperial Airways no other air line is to have any money at all from the Government. Therefore Imperial Airways Ltd. is clearly indicated in this paragraph as the recipient of the said subsidy.

Hitherto the Cairo-Baghdad mail has been run by the Royal Air Force, not as a commercial proposition but as a Service exercise. Pilots and machines have to fly anyhow to keep the personnel in practice and to learn all that can be learned about the aeroplanes and the engines. Therefore they might just as well be employed in flying between Cairo and Baghdad as anywhere else. And the fact that they have to fly more or less to schedule time, regardless of weather, imparts to the mail line something akin to Service conditions. And all of that is very good both for the people who have to do the flying and the people who have to keep the machines in flying order.

Now if a certain sum of money is to be taken away from the amount allocated to the R.A.F. in Iraq and given to Imperial Airways Ltd, the consequence must be that the R.A.F. in Iraq will do just that much less flying and will be just that much less efficient. Therefore we know that we are that much to the bad under the new arrangement. The question therefore is whether we shall be anything at all to the good, to balance up against that loss, by handing over the desert air route to Imperial Airways Ltd.

The Might-Be and the Probability.

If the Directorate of Imperial Airways Ltd. had shown any signs in the past of doing anything to promote the progress of Civil Aviation we might look forward with interest, if not with complete confidence, to some advantages to be derived from the change of policy. For example we might look for a more frequent and more reliable mail service to the British Forces in Iraq as well as a very considerable saving in time in such mail matter as the slow-witted English business man might be persuaded to send by that route to India, and ultimately to Australia.

We might also look forward to seeing new and interesting aeroplanes of very much improved design being built specially for the air mail service between Egypt and India—or the Kantara-Karachi service as it will doubtless be called because of the average journalist's affection for "apt alliteration's artful aid."

Unfortunately nothing in the history of Imperial Airways Ltd. during its full year of existence suggests that the Directors have any ideas in their heads other than running an air line in the cheapest possible way by using old flying-stock and depending for approximate regularity of service on the skill of their pilots and on the ability of their engineers to reduce engine failures to a minimum.

One knows pretty well the opinions which the pilots and the ground staff alike hold of the Directors of Imperial Airways Ltd. and one only regrets that one is unable to publish those opinions for the enlightenment of the said Directors. A year ago one's duty to aviation forced one to be antagonistic to the opinions of the pilots on a purely financial question. To-day one finds oneself entirely on the side of the pilots on the question of practical aviation.

The general feeling among them seems to be that they are obliged to fly aged aircraft or aeroplanes of out-of-date design because the Directors want to confine the firm's running losses to the Government subsidy without losing any of the capital which was put up by the financiers, and to some extent by the British Public.

What the pilots want are new machines of more advanced design than anything that they have got at the moment, with very much higher top speeds and very much lower landing speeds and much greater controllability at low speeds. So far there is no sign of any such machines being put into use by Imperial Airways Ltd. during the first two years of its existence out of the ten years during which the subsidy is to run. Naturally practical aviators do not feel supremely confident in directors who produce no observable progress in one-fifth of their subsidy period.

Sir Samuel Hoare said that he hoped to have the service running during the Winter 1925-26. No new machines can be produced in time for next Winter and therefore the logical conclusion is that the Directors and the Department of Civil Aviation will be content to run the Egypt—India service on comparatively antiquated machines which will be handed over to them by the Royal Air Force. Therefore apparently the only difference between the present service and the future service will be that a few extra civilian pilots will be given employment and there will be work for a certain number of civilian mechanics while on the other hand the Air Force personnel will be deprived of valuable practice and experience.

Flying By Itself.

Very soon after the War 1914-18 Mr. Winston Churchill stated definitely that in his opinion Civil Aviation would have to learn to fly by itself. That struck one as being a sound policy at the time and one still thinks that it would have been the wisest policy to follow. At any rate subsidies might have been withheld till some civilian air line firm procured from some enterprising designer machines which put up a better performance than the R.A.F.'s Service machines and were therefore worth subsidising in the same way that the Admiralty finds it worth while to subsidise our high speed Atlantic liners which put up a better performance than our warships. That would mean that Civil Aviation was flying by itself.

But, judging by present developments, or lack of them, there seems to be every likelihood that Civil Aviation will still have to fly by itself. No progress seems to be forthcoming from Imperial Airways Ltd. and the probability is that sooner or later some really enterprising aeroplane constructor assisted by some equally enterprising aero-engine maker will produce a really commercial aeroplane which can be operated at a cost which will allow it to earn its own keep. When such a machine is produced some equally enterprising financier will be forthcoming to run an air line equipped with such machines in direct competition with the subsidised line. Then we shall have that competition which is so good for trade. And probably soon afterwards Imperial Airways Ltd. will cease to make any way in the air.

Which is the Right Route?

The only other question which is worth discussing in this connection is the general question of which is the correct air route to India. Obviously the best route is that followed by General Brancker and Mr. Cobham—a course across Germany, then down the Danube to Constantinople, and so across Asia Minor and down the river Tigris to Baghdad.

At present there are difficulties about flying over Germany but this can be overcome as soon as the Council of Ambassadors becomes sensible on the subject of the performances of German aircraft. Also the route over the Taurus Mountains is unpleasant. But possibly a better route could be found across Turkey by way of Angora and Diarbekr.

There are also possibilities in an aeroplane line to Istres near Marseilles, where passengers and mails would change onto big flying boats on the Lake of Berre, whence they would go by way of Corsica, the heel of Italy, Malta, Crete and Cyprus to Beirut in Syria, or even to Alexandretta, whence there is fairly easy going, mostly down the river Euphrates, to Baghdad. This would avoid all the extremely bad hill country of Palestine and the open desert from Amman to Ramadie.

In the meantime however presumably the mails will go by boat and train to Port Said as there is no saving in sending them by air to Paris and will only travel by air from Kantara to Karachi.

If there were a really big scheme on foot to run mails right through by air either across Germany or along the Mediterranean there might be some justification for taking money from the Air Force in Iraq to add to the subsidy of the European end of the line. But under existing conditions one can see no reason whatever why the efficiency of the Air Force should be decreased in order to hand over the money to a concern which at the end of two years of existence will have done practically nothing to further the progress of aviation.—C. G. G.

Lympne.

A statement has been issued that the inter-Club race for D.H. Moths has been cancelled owing to the fact that it has been impossible to get more than one or two Moths completed in time.

There is, however, a suggestion for an all-Moth race later on in the season.

In place of the Moth Race the Royal Aero Club will promote a series of individual challenge races. That is to say if one pilot considers that he can beat another pilot on a certain course with a certain handicap, or, say, one Moth pilot thinks he can beat another Moth pilot, giving him 30 seconds start, he can challenge him to a race and the club will put up a limited number of £10 prizes. Challenges may be made any time during the meeting.

YET ANOTHER GREAT SUCCESS

THE KING'S CUP

Two Circuits of Britain Air Race (1,608 miles) for the Cup presented by

HIS MAJESTY THE KING

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fitted with a

'JAGUAR' RADIAL AIR-COOLED ENGINE

entered by The Rt. Hon. Sir Eric Geddes, G.C.B. G.B.E. Pilot : Capt. F. L. Barnard.

Also making

FASTEST TIME

2ND ON A **'SISKIN IV'** AERO-PLANE

fitted with a

'JAGUAR' RADIAL AIR-COOLED ENGINE

entered by Sir Glynn Hamilton West. Pilot : Squadron Leader H. W. G. Jones, M.C.



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A PERSONAL EXPLANATION.

Reluctant as one is to bring purely personal matters into this paper, one feels that there is reason for doing so when one is told from several directions that there is a story going round in the R.A.F. to the effect that one's consistently hostile attitude towards the Admiralty is due to the fact that a very near relative of one's own was in the Navy as an R.N.A.S. officer and was removed therefrom.

Therefore one wishes to explain that one's nearest relatives are first cousins, and that of these one was a Post Captain, R.N., contemporary with the late Lord Charles Beresford at the Battle of Alexandria, and that another was an Engineer Commander, R.N., who died some ten years ago. A considerably more distant relative served with distinction in the R.N.A.S. and retired owing to injuries which have left him permanently crippled.

Having had so much to do with the Navy one was naturally prejudiced in favour of the Senior Service until the outbreak of War in 1914, and one had in fact a number of intimate friends in the R.N.A.S. and very few in the R.F.C. But the way in which the Admiralty and the senior officers of the Navy mishandled the Air Service right from the beginning of the War, and the way in which the Navy failed to protect our Mercantile Marine throughout the War, and very nearly reduced this country to a state of starvation, besides losing thousands of valuable lives in troopships and transports, entirely abolished all one's earlier prejudices in favour of the Navy and produced a firm conviction that in future wars this country dare not trust the Navy to protect any part of the British Empire. The British Navy can no doubt be trusted to fight any foreign navy on the surface but it cannot be trusted either to protect our trade routes or to guard our coasts.—C. G. G.



A MILLIONAIRE-YACHT.—Mr. Harold S. Vanderbilt's Kirkham air-boat (Napier Lion engine).

A MILLIONAIRE'S AIR YACHT.

The Kirkham Products Co., of Garden City, N.Y., have recently completed, to the designs of Mr. C. B. Kirkham, a very interesting flying boat which has been built to the order of Mr. Harold S. Vanderbilt. It is a five-seater monoplane pusher flying boat, of mixed metal and wood construction, and is fitted with a 450 h.p. Napier Lion engine.

The hull is built up of a series of internal bulkheads of sheet duralumin, which are united by an oak keel and oak longitudinal stringers. The hull covering is duralumin sheet attached to the longitudinal members by duralumin wood screws, and to the transverse bulkheads by duralumin bolts.

Over the forward portion of the hull is situated an open cockpit for two pilots, fitted with complete dual control.

In front of the pilot's cockpit ample space is provided for luggage, anchor and other equipment, access to this compartment being gained by a large-sized hatchway in the forward deck.

In the rear of the forward cockpit is an enclosed cabin compartment with accommodation for three passengers.

Immediately behind the passenger's cabin is mounted the 450 h.p. Napier Lion engine, driving a pusher four-bladed airscrew.

The whole forward portion, which contains the pilot's cockpit, the passenger cabin, and the engine mounting, stands up from the hull proper, and is of very clean design, the engine being particularly well encowled, only the valve gear casing and the exhaust pipes protruding therefrom. This forward portion terminates in a knife-edge below the engine, and on the deck, aft of the airscrew, is mounted the radiator. The deck below the airscrew is well armoured as a protection against the possible fracture of the airscrew.

The monoplane wings are of the cantilever type, and are attached to two wing-stubs (which are inclined steeply upwards from the hull), by ball and socket joints, and taper bolts. Duralumin tubing enters largely into the construction of the wing skeleton, and the wing covering consists of corrugated sheet duralumin riveted to the framework.

Wing flaps extend the whole span of each wing, the outer portions, about half the span of each flap, acting as ailerons. The ailerons may be operated with the flaps in any position, and a device is fitted whereby the tail is adjusted to correct the trim of the machine, as the flaps are lowered or raised.

Wing-tip floats are mounted directly to the lower wing surface, about one-third of the span distance from the wing-tip.

The tail unit, consisting of an internally-braced monoplane tail and elevator, fin and rudder, is entirely of metal construction, the covering being of corrugated duralumin sheet, as on the wings.

All controls are of the direct push-and-pull type, and are arranged for easy inspection.

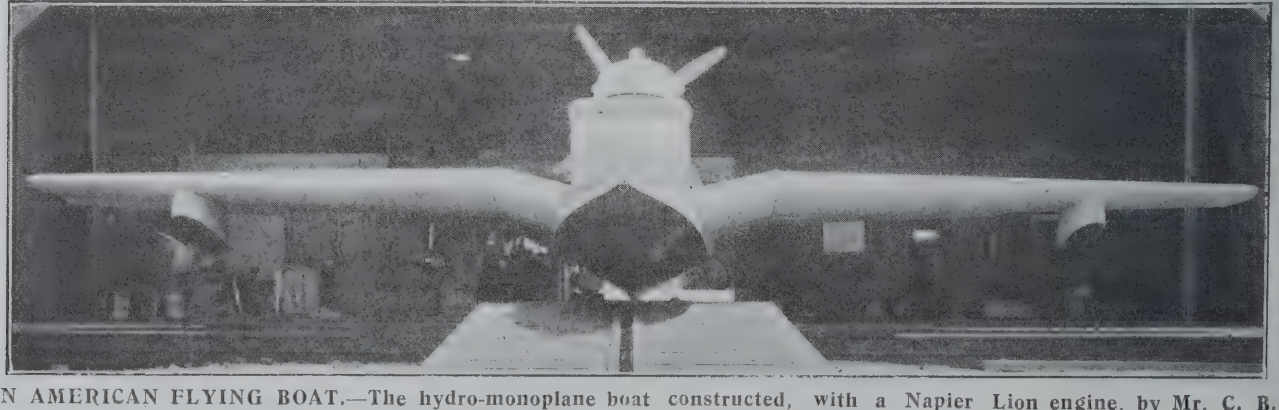
The petrol tanks are situate in the inclined wing-stubs, and have a total capacity sufficient for 4½ hours or 650 miles at full throttle.

The following are the prinicpal particulars of the Kirkham "Airboat," as it is called:—Span, 47 ft.; weight, empty, 3,700 lbs.; top speed, 145 m.p.h.; cruising speed, 125 m.p.h.; landing speed, 60 m.p.h.

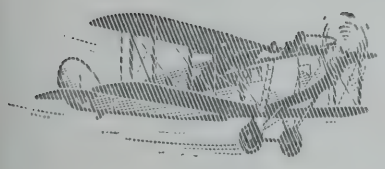
This machine, which is of the most interesting and the most powerful privately-owned aircraft, is being used by Mr. Vanderbilt for both business and pleasure, being flown either by Mr. Vanderbilt or by Mr. S. W. Cogswell, who has been engaged as his pilot.

THE BODMIN.

Successful tests have been made by Mr. Frank Courtney with the Boulton and Paul Bodmin. This machine is driven by two Napier Lion engines in the fuselage, which drive four airscrews situated on the wings. The tests up to now have been highly successful.



AN AMERICAN FLYING BOAT.—The hydro-monoplane boat constructed, with a Napier Lion engine, by Mr. C. B. Kirkham for Mr. H. S. Vanderbilt.



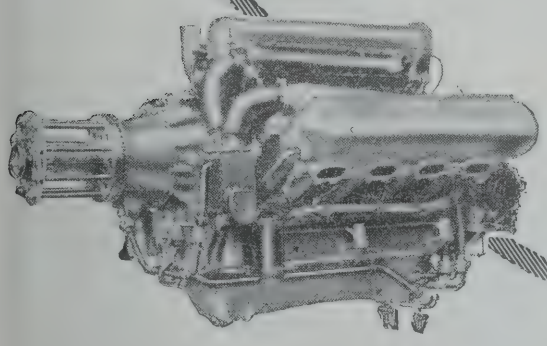
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R.A.F. INTELLIGENCE.

The London Gazette.

July 14.

General Duties Branch.—The following are granted perm. comns. in the ranks stated (July 15) :—Flt. Lt. W. E. Knowlden (Lt., Border Regt.); Flg. Off. B. H. C. Russell.

C. Walter is granted a S.S. comn. as a Flg. Off. with effect from, and with seniority of, July 1.

The following Plt. Offs. are promoted to the rank of Flg. Off. :—J. H. Woodin (June 15); N. Young, R. R. Reedman, E. A. McKinley-Hay, W. J. P. Sloan (June 19).

The following Plt. Offs. are dismissed the service by sentence of General Court-Martial :—G. A. Cruickshank (June 22); E. L. Batsou-James (July 4).

Plt. Off. on probation W. L. Mummery relinquishes his S.S. comn. on account of ill-health (July 15).

Accountant Branch.—Flt. Lt. (acting Wing Cdr.) L. J. Lightfoot, O.B.E. (Maj., R.A.P.C.), relinquishes his temporary commission on return to Army Duty (July 10).

Medical Branch.—Flt. Lt. T. C. St. C. Morton, M.D., D.T.M. and H. is promoted to the rank of Sq. Ldr. (July 9).

Reserve of Air Force Officers.—The following Plt .Offs. are promoted to the rank of Flg. Off. :—E. P. Clacey (Mar. 23); C. C. Thurrell (Apr. 21); S. W. Lummis (May 11); E. Crewdson, M.C. (May 18); A. H. Partner (May 23); G. S. Fiske (May 27); A. J. Plummer (May 27); W. C. Kilvington (Maj., R.A.R.O.) (May 27); W. Wilson (June 2); W. Mellor (June 9); M. A. Vachon (June 16); G. H. Smith (June 16); J. S. Napper, D.C.M. (June 20); H. G. Harper (June 23); J. J. B. Rutter (June 23); C. W. Sutcliffe (June 30).

Plt. Off. L. F. Cubitt is transferred from Class A to Class B (June 23) (substituted for the notification in the *Gazette* of June 23); Flg. Off. M. H. Findlay, D.S.C., D.F.C., is confirmed in rank (July 13).

July 17.

General Duties Branch.—The following are granted S.S. comns. in the ranks stated, with effect from, and with seniority of, the dates indicated :—

Flg. Offs.—(For seven years on the active list).—W. H. Burbury (Lt., Indian Army, retired), H. L. Drake (Lt., Indian Army, retired), M. C. Pascoe (Lt., R.N., retired), M. A. Platts (Lt., Indian Army retired) (July 7).

Plt. Offs. on Probation.—(For five years on the active list).—W. S. Barnicott, P. E. Berryman, J. W. Busteed, G. P. Butcher, H. A. S. Byrne, A. H. Campbell-Horsfall, E. H. Collinson, M.C. (Maj., E. Surrey Regt., R.A.R.O.), H. V. Crowder, F. G. H. Ewens, S. B. Flood, M. H. Frame, J. N. Goodwyn, J. A. Hawkings, L. M. S. Knight, C. A. C. Patton, E. C. I. Richardson, W. L. Robertson, W. J. M. Spaight, N. E. C. Squire, I. R. Sweeting, W. S. Townend, P. G. Tweedie, E. J. H. Wathen R. C. Whittle (July 7); A. J. L. Hughes (July 13).

Appointments.

Week ending July 10.

General Duties Branch.—Squadron Leaders D. O. Mulholland, A.F.C., to Cadet College, Cranwell, 16/7. W. B. Farrington, D.S.O., to No. 84 Sqdn., Iraq, 22/6. H. W. G. Jones, M.C., to No. 19 Sqdn., Duxford 23/7.

Flight Lieutenants W. E. Reason, to No. 2 F.T.S., Digby, 14/7. E. R. Openshaw, to H.Q., Coastal Area, 22/7. L. M. Hilton, D.F.C., to No. 421 Flight, Gosport, 22/7. E. J. Kingston-McCloughry, D.S.O., D.F.C., to No. 480 Flight, Calshot, 22/7. A. C. Collier, to No. 43 Sqdn., Henlow, 20/7. V. Buxton, O.B.E., to Electrical and Wireless School Flowerdown, 20/7. E. R. B. Playford, to No. 4 Sqdn., S. Farnborough, 20/7. W. E. Knowlden, to No. 100 Sqdn., Spittlegate, 20/7. C. R. Smythe, to No. 19 Sqdn., Duxford, 20/7. H. A. Smith, M.C., to No. 1 School of T.T. (Boys), Halton, 15/7. E. S. Burns, to No. 405 Flight, Leuchars, on transfer to Home Estab., 12/6. D. S. Brooks, to remain at No. 16 Sqdn., Old Sarum. R. Barrett, to No. 6 Sqdn., Iraq, 21/6. H. D. Mitchelmore to No. 70 Sqdn., Iraq, 21/6. W. H. Burbury, H. L. Drake, M. C. Pascoe, and M. A. Platts, to R.A.F. Depot on appointment to S.S. Comns., 7/7. H. V. David, to H.Q., Iraq, 1/7. A. Malone, to R.A.F. Depot on transfer to Home Estab., 26/6. R. A. King, to No. 47 Sqdn., Egypt, 21/6. P. L. Binns, to No. 216 Sqdn., Egypt, 21/6. C. S. Whellock, to No. 2 Arm. Car Coy., Palestine 24/6. A. S. M. Meyrick-Jones, A.F.C., to R.A.F. Depot on appointment to a S.S. Comn., 14/7.

Pilot Officers W. C. Adams, to No. 70 Sqdn., Iraq, 23/6. A. J. L. Hughes, to R.A.F. Depot on appointment to a S.S. Comn., 13/7. The undermentioned Pilot Officers are all posted to the R.A.F. Depot on appointment to S.S. Comns (on probation), 7/7 :—W. S. Barnicott, P. E. Berryman, J. W. Busteed, G. P. Butcher, H. A. S. Byrne, A. H. Campbell-Horsfall, E. H. Collinson, M.C., H. V. Crowder, F. G. H. Ewens, S. B. Flood, M. H. Frame, J. N. Goodwyn, J. A. Hawkings, L. M. S. Knight, C. A. C. Patton, E. C. I. Richardson, W. L. Robertson, W. J. M. Spaight, N. E. C. Squire, I. R. Sweeting, W. S. Townend, P. G. Tweedie, E. J. H. Wathen, R. C. Whittle.

Medical Branch.—Squadron Leader J. M. A. Costello, M.C., M.D., M.Sc., to R.A.F. British Hospital, Iraq, 20/6.

Flight Lieutenant J. B. Woodrow, to No. 41 Sqdn., Duxford, 28/6.

Stores Branch.—Flight Lieutenants W. C. Green, M.C., to No. 5 F.T.S., Sealand, 20/7. W. R. Fairbairn, to M.T. Repair Depot, Shrewsbury, 20/7.

Accountant Officers.

The Air Ministry announces that an examination of candidates for commissions as Accountant officers will be held in the latter part of September, 1925, under the scheme inaugurated in 1924 for entry into the commissioned ranks of the Accountant Branch of the R.A.F. The number of vacancies to be filled immediately from this examination will probably be about 12.

Candidates must be between 22 and 26 years of age on Oct. 1, 1925, but an extension up to 30 years of age may be granted in certain circumstances on the ground of previous service in the Forces.

Applications, which must be made on the prescribed form obtainable from the Secretary, Air Ministry, Kingsway, London, W.C.2, should reach that Department not later than Aug. 15, 1925.

The emoluments of accountant officers, which consist of a basic rate plus allowances, amount under present scales to £403 0s. 5d. (single) and £418 4s. 7d. (if married and eligible for married allowances) for a Pilot Officer, rising according to rank and length of service to £787 15s. 10d. (single) and £810 12s. 1d. (married) for a Wing Commander—the highest rank in the Accountant Branch for which provision is at present made.

The detailed regulations and necessary forms of entry may be obtained on application to the Secretary, Air Ministry (S.7.), Kingsway, London, W.C.2.

Boy Clerks in the R.A.F.

The Air Ministry announces that as a result of the experience gained from the working of the scheme for the enlistment of boys in the Royal Air Force, as aircraft apprentices, the Air Ministry has drawn up a scheme on broadly similar lines for the entry of well educated boys into the ranks of the Royal Air Force, to be trained for clerical duties. The scheme should prove attractive to boys with an aptitude for clerical work and a liking for Service life, who desire to see the world. The experience and training obtained during Service should be of great assistance to them on returning to civil life. The clerical work in the Royal Air Force, particularly that connected with pay and stores accounting, calls for intelligence and accuracy and a capacity for readily assimilating instruction, and a good standard of education is therefore required from candidates. They must be physically fit, between the ages of 15½ and 17, and must be of pure European descent, and the sons of natural-born or naturalised British subjects. A pamphlet (Air Publication 1109) containing the detailed regulations can be obtained on application from the Secretary, Air Ministry, Adastral House, Kingsway.

British Aircraft for China.

The Morning Post of July 18 states :—

The Navy League yesterday received from its Hong Kong branch a cablegram strongly urging that the light cruiser *Diomede* should remain there during the present crisis. "There is a complete absence of British aircraft," continues the message, "while Chinese aircraft circle daily over Shameen."

A *Reuter* message from Malta, which was quoted in The Aeroplane of July 15, stated that the aircraft-carrier *Hermes* had been ordered to China.

The R.A.F. at Bisley.

The R.A.F., past and present, was well represented in the three stages of the shoot for the King's Cup at Bisley, on July 17 and 18.

In the first stage, Flg. Off. G. Richardson, Reserve of Air Force Officers, won the Silver Medal. Capt. Robinson (late R.A.F.), who won the Gold Medal in 1923, stood 6th on the list. Wing Cdr. Barton was in the first 30, Flg. Off. Greenslade was also well placed.

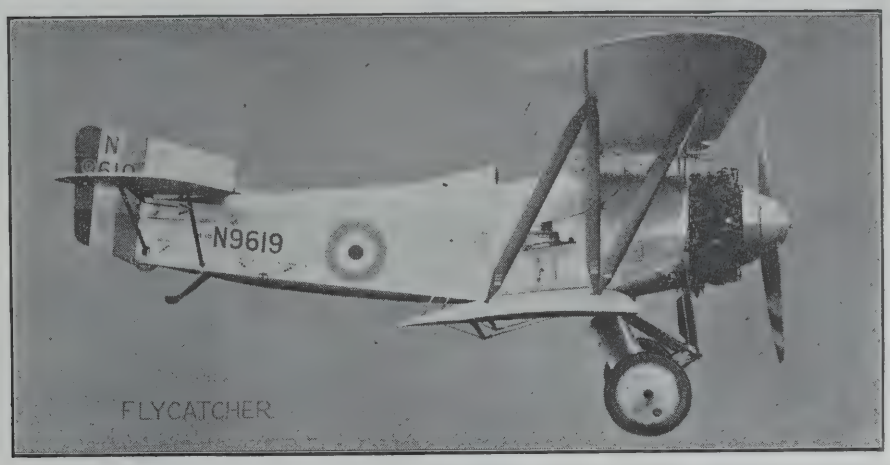
In the second stage Capt. Robinson scored 97, Flg. Off. Greenslade 95, Flt. Lt. Richardson 93, Wing Cdr. Barton 95, and Flg. Off. Richardson 98.

The placing of these officers in the final stage was as follows :—8, Capt. Robinson (222); 49, Flg. Off. Greenslade (209); 54, Flt. Lt. Richardson (208); 57, Wing Cdr. Barton (208); 60, Flg. Off. Richardson (208).



The Serjeants' Mess No. 84 Squadron, R.A.F., Shaibah, Iraq.

R·A·F· TYPES — No 1·





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Inter-Service Athletics.

The Inter-Service Athletic Championships were held at Woolwich on July 15. The triangular tournament was won by the Army with 24 points, and the R.A.F. and R.N. tied for second place, with 14 points.

The high jump was won by the R.A.F., Flg. Off. Nuttall clearing 5 ft. 11 in., and Flg. Off. Burns 5 ft. 5 in. The next best jump to Mr. Nuttall's was that of Lt. Stephenson, R.N., who jumped 5 ft. 10 in.

The R.A.F. team finished second in the Quarter-Mile Relay Race, which was won by the Army. The Air Force team consisted of Cpl. Mottershead, Cpl. Arthur, AC. Moffatt, and Plt. Off. Vines.

The R.A.F. took second place in Putting-the-Weight, Wing Cdr. Pattinson throwing 36 ft. 6 ins., and Flg. Off. Sterling Webb 34 ft. 11 ins. The winner, Capt. Ross (Army) threw 39 ft. 7 ins.

In the Three-Mile Team Race, the R.A.F. team were second. The race was won by the Army in 15 m. 25.2-5 secs. by five yards. In the individual placings, L-AC. Goodall was second, L-AC. Cainis fifth, and L-AC. Ferris seventh.

The R.A.F. team did not finish the 360 Yards Hurdles Relay Race, which was won by the Navy.

The One-Mile Team Race was won by the Army, the R.A.F. taking second place. The Navy did not finish. Individual placings, AC. Turner third, and L-AC. Buxey fifth.

The Long Jump was a close competition, the best Army jump being 22 ft. 3 ins., the best Navy jump 21 ft. 11 ins., and Flg. Off. Hadley, for the R.A.F., 21 ft. 1½ ins.

The Army won the One-Mile Relay Race in 3 m. 29.2-5 secs. by six yards, the Navy were second, eight yards ahead of the R.A.F.

In the Two-Mile Relay Race, the R.A.F. were third, their time being 8 m. 16 secs., against the Army's 8 m. 6.3-5 secs., and the Navy's 8 m. 13.1-5 secs.

Lawn Tennis.

The R.A.F. Lawn Tennis Championships took place at Queen's Club on July 13, 14, 15, 16, 17 and 18.

The semi-finals and finals were as follows :—

R.A.F. Singles Championship.—Semi-Final Round.—Sq. Ldr. H. J. F. Hunter beat Sq. Ldr. V. S. Erskine Lindop (6—4, 3—6, 6—1); Flg. Off. C. F. Roupell (holder) beat Flt. Lt. C. E. Williamson-Jones (6—2, 6—0).

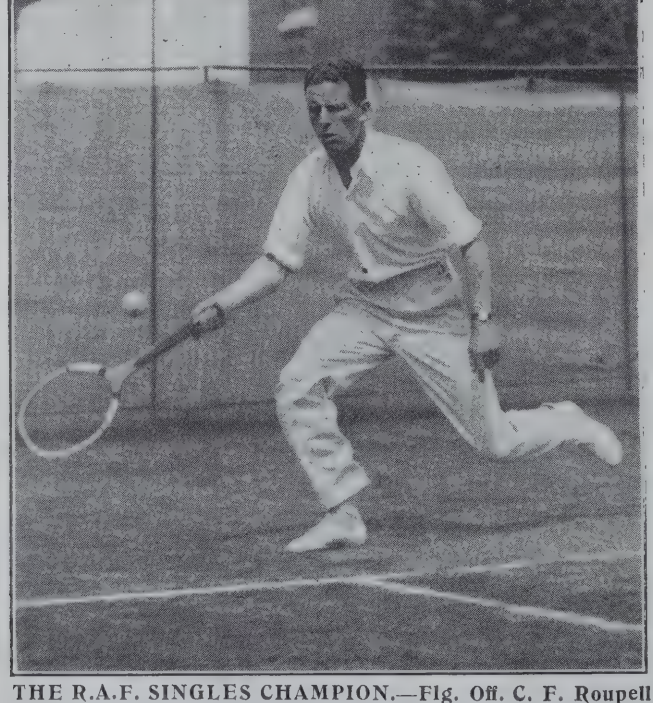
Final Round.—Flg. Off. C. F. Roupell (holder) beat Sq. Ldr. H. J. F. Hunter (6—3, 6—3, 4—6, 7—5).

R.A.F. Veterans' Cup.—Semi-Final Round.—Wing Cdr. W. R. Read beat Wing Cdr. H. W. Scott (3—6, 6—1, 6—2); Sq. Ldr. P. Young beat Wing Cdr. G. C. de Dombasle (6—4, 6—3).

Final Round.—Sq. Ldr. P. Young beat Wing Cdr. W. R. Read (6—2 6—3).

R.A.F. "Plate."—Semi-Final Round.—Flg. Off. E. D. H. Davies beat Flt. Lt. W. H. Poole (6—0, 6—2); Sq. Ldr. F. G. M. Williams beat Sq. Ldr. P. Young (6—2, 6—3).

Final Round.—Flg. Off. E. D. H. Davies (holder) beat Sq. Ldr. F. G. M. Williams (6—4, 6—4).



THE R.A.F. SINGLES CHAMPION.—Flg. Off. C. F. Roupell, No. 9 (Bombing) Sqdn. R.A.F., winning the R.A.F. Singles Championship for the third year in succession.

R.A.F. Doubles Championship.—Semi-Final Round.—Flt. Lt. Williamson-Jones and Flg. Off. Davies beat Sq. Ldr. N. F. D. Buckeridge and Flt. Lt. H. J. Gilbert (2—6, 8—6, 6—3); Sq. Ldr. Hunter and Sq. Ldr. Saul beat Flt. Lt. J. Duminy and Flg. Off. C. F. Roupell (6—4, 3—6, 6—0).

Final Round.—Sq. Ldr. H. J. F. Hunter and Sq. Ldr. R. E. Saul (holders) beat Flt. Lt. C. E. Williamson-Jones and Flg. Off. E. D. H. Davies (6—1, 6—1, 10—8).

Inter-Area Cricket.

A match was played at Uxbridge on July 1 between H.Q. Inland Area and H.Q. Coastal Area, and resulted in a win for the Inland Area by three wickets. The scoring was as follows :—

COASTAL AREA.

L-AC. Boddy, c. and b. Catherall, 18; Sq. Ldr. H. L. O'Neill, b. Catherall, 16; Flt. Lt. H. M. Massey, b. Catherall, 37; L-AC. Bassett, c. Ward, b. Catherall, 6; Sq. Ldr. P. Huskinson, c. Hobbs, b. Morris, 9; J. A. Taylor, Esq., c. Lawson, b. Morris, 3; Sq. Ldr. G. C. Pirie, lbw., b. Catherall, 7; L-AC. Fookes, lbw., b. Hobbs, 58; Flt. Lt. F. A. Norton, b. Catherall, 0; Flg. Off. V. Bennett, run out, 15; Sq. Ldr. W. F. Bryant, not out, 1; Extras, 15.

Total 185.

Bowling :—Essex 0 for 47, Catherall 6 for 82, Morris 2 for 35, Hobbs 1 for 6.

INLAND AREA.

Flt. Lt. J. Hobbs, b. Fookes, 0; Grp. Capt. Hon. J. D. Boyle, b. Fookes, 22; Flt. Lt. H. N. Hampton, b. Fookes, 0; Flt. Lt. J. Lawson, lbw., b. Bassett, 1; Sq. Ldr. A. S. Morris, run out, 24; Flt. Lt. J. E. Catherall, c. Taylor, b. Bryant, 38; Flg. Off. B. E. Essex, c. and b. Bryant, 36; Air Commodore T. C. R. Higgins, b. Boddy, 29; AC.1. L. Garven, not out, 39; Cpl. A. E. Wood, c. O'Neill, b. Bryant, 16; Flt. Lt. D. E. Ward, c. O'Neill, b. Bryant, 0; Extras, 19.

Total 224.

Bowling :—Fookes 3 for 86, Bassett 1 for 19, Boddy 2 for 50, Norton 0 for 17, Bryant 3 for 19, Pirie 0 for 14.

Mr. Amery on Iraq.

At the annual dinner of the Central Asian Society, which was held on June 30, at the Hotel Victoria, Mr. Amery, Secretary of State for the Colonies, replying to the toast of the Guests, referred to his recent visit to Iraq.

According to *The Times* he said he did not think that any person who had not been there could understand what a splendid training ground it was for the Air Force. For all-round efficiency he did not think the Air Force in that country could be equalled in the world. Before many years had gone, he thought, they would see a commercial development in Iraq which would show a very substantial return for what we had done in that country.

Iraq would soon be able to find the money for its local defence, and Imperial money would be spent, not so much on Iraq, but in connection with the organisation of Imperial defence. He believed that before many years had passed this country would see there, in actual commercial development, a very reasonable and indeed substantial return for what it had done for Iraq.

"Peace in Waziristan."

(With acknowledgments to *The Indian Pioneer Mail.*)

"Oh Big 9 A! Oh Big 9 A!
What are *you* doing down Razmak way?
Why these bombs? This pomp of War?
Surely your home is at Risalpur?"
"'Pomp' be damned!—You make me laugh!
There ain't no 'pomp' on this small Straff;
I'm bombing hell from the local Khan
To prove there's 'peace' in Waziristan."

"Oh Smart Brisfit! Oh Smart Brisfit!
What are *you* doing in fighting kit?"
"I'm praying hard I'll avoid a konk—
On Offensive Patrols from a sink called Tank.
Up the gorges and down Splitoi
Sniped to blazes, but—Attaboy!
They called it 'war' on the banks of Marne,—
But, bless you! It's 'peace' in Waziristan."

"If they ask me, what shall I say,
To the folks at home back England way?"
"Don't you worry, there's nought to tell—
'Cept work and fly and bomb like hell,—
With Hills above us and Hills below,
And rocks to fill where the Hills don't go,—
Nice soft sitting for those who crash!
But 'war,' you call it?—Don't talk trash!
War's a rumour—War's a yarn—
This is the 'peace' of Waziristan."

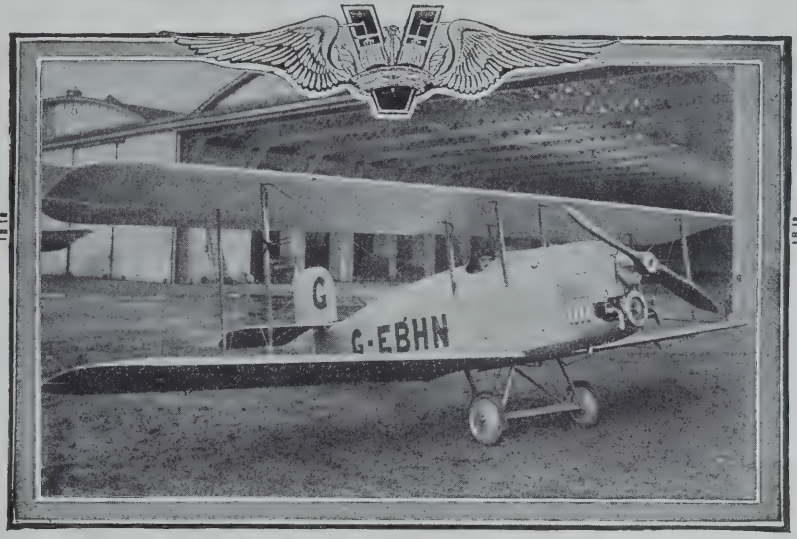
No. 55 Squadron Re-Union.

The Annual Re-Union Dinner of No. 55 Squadron will be held at Oddennino's Restaurant on Saturday, Aug. 8, at 19.30 hours for 20.00 hours.

Wing Cdr. J. E. A. Baldwin, D.S.O., O.B.E., who formed the original Squadron at Melbourne, and is now home from Iraq, will be present. The organisers of the Re-Union hope that as many former members of the Squadron as possible will attend to support Wing Cdr. Baldwin.

Full particulars and tickets may be had from Sq. Ldr. C. H. Nicholas, D.F.C., A.F.C., Organiser of No. 55 Sqdn. Re-Union Dinner, The R.A.F. Staff College, Andover, Hants.

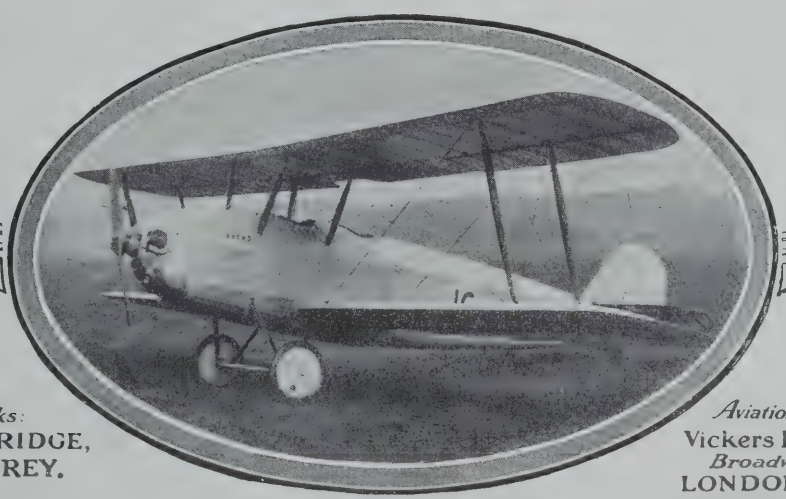
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Air Affairs in Parliament.

UNDERGROUND SHEDS.

In the House of Commons on July 15, in reply to a question by SIR GERALD STRICKLAND, the UNDER-SECRETARY OF STATE FOR AIR said that he had not received information that certain Powers in the Mediterranean had adopted hangars that were underground and bomb-proof. The desirability of constructing underground hangars where local conditions were favourable had already received careful consideration, but generally the cost of such construction as compared with the normal design was prohibitive. SIR G. STRICKLAND thought that the inadequacy of the air defences of the key bases along our main lines of communication in the Mediterranean for imports and exports was causing considerable alarm.

THE COST OF EXPANSION.

In the House of Commons on July 15, in reply to a question by SIR F. SYKES, the SECRETARY OF STATE FOR AIR said that the amount spent on the acquisition of new air stations and buildings under the R.A.F. expansion schemes of 1922 and 1923 up to April, 1925, came under the following heads: Lands and Buildings purchased with the land, £90,000. Works on these sites £105,000. Works on stations already occupied by the R.A.F., £245,000. Expenditure at a similar or slightly increased rate for five or six years would probably be required to complete the scheme.

GAS.

In the House of Commons on July 9, the SECRETARY OF STATE FOR AIR made the following reply to a question by MR. VIANT:—

"It is proposed to use hydrogen gas for the experimental flights to Egypt and the East without any admixture of helium, as helium has only been produced commercially in the United States, and its export from that country has been prohibited. The cost of hydrogen gas produced at the Royal Airship Works by the water-gas process is about 10s. per 1,000 cubic feet. If produced by a silicol plant such as is installed at Pulham, the cost is about 30s. per 1,000 cubic feet. Silicol plants are being installed in Egypt and India, as their capital cost is much less than that of water-gas plants. It is impossible until further experience has been acquired to give any reliable estimate of the cost of hydrogen gas in Egypt and India."

The 1925 Flying Programme in Canada.

The programme of flying operations to be carried out during the present season for the various branches of the Government service by the Royal Canadian Air Force was drawn up at the recent annual inter-departmental conference on flying operations held at Ottawa.

The conference was under the chairmanship of the Deputy Minister of National Defence and representatives from twenty branches of the Dominion Government service were present. It was announced that thirty-three aircraft would be available for civil government operations, distributed at the various stations as follows: Dartmouth, N.S., air station, 2; Ottawa air station, 4; Manitoba area, 16; High River, Alberta, air station, 7; Vancouver air station, 4. One or more aircraft at each will be fitted for aerial photography.

The growing importance which aviation is assuming in carrying on the work of various branches of the Dominion Government service is shown by the increasing demand on the pilots and equipment of the Royal Canadian Air Force. As in the past the work of the Department of the Interior is the largest item on the programme. The plans for 1925 show extensive work for the Forestry, Topographical Surveys, National Parks, Water Power and Reclamation, International Boundary Commission and Ordnance Lands branches of the department.

In the programme outlined, photographic operations for the coming season show a notable increase over the work called for in 1924, when 40,000 square miles were covered by aerial photography. The 1925 programme includes at least double last year's area. The major part of the photographic work will be done for the Topographical Surveys Branch of the Department of the Interior in connection with its aerial surveys. The actual mapping is under the Topographical Survey.

Forest patrol work has also been extended by the addition of a new sub-sation near The Pas to serve the western part of northern Manitoba and by the inclusion of the northern part of the Clearwater forest reserve in western Alberta in the area to be patrolled. Rapid progress is being made in perfecting organisation and developing equipment which will ensure maximum efficiency in forest fire detection and prevention at costs within the economic means of forest authorities. The Royal Canadian Air Force and the Dominion Forest Service are bending all their energies to this end.

Details of the coming season's programme are given below:—

Department of Agriculture.—Investigation of the upper atmosphere in connection with the spread of the wheat rust diseases; continuation of work on white pine blister rust control.

Department of Customs.—Continuation of patrols for preventive service.

Department of Indian Affairs.—Transportation for parties paying Treaty money in northern Manitoba.

Department of Marine and Fisheries.—Fisheries patrols in northern British Columbia.

Department for Mines.—Vertical photography for mapping an area north of Georgian bay.

Department of Public Works.—Photographic survey of the Portland Canal, B.C.

Department of Railways and Canals.—Photography of Hudson Bay Railway line and Churchill River district.

Department of the Interior: Topographical Surveys.—Vertical photography for mapping Windsor, N.S., and Fredericton, N.B., sectional sheets; oblique photography for mapping the counties of Annapolis, Queens, Kings, and Lunenburg, N.S.; vertical photography of Three Rivers, Que., and Kitchener, Ont., sectional sheets, and of areas in the upper Gatineau watershed and Rouyn mineral areas, Quebec; oblique photography of the Churchill river from Fort Churchill, Manitoba to Pakkatawagan; completion of oblique photography in The Pas mineral area; extension of previous photographic surveys in Ontario and Manitoba; photography for the compilation of Battleford, Victoria, Fort Assiniboine, Peace Hills, and Red Deer sectional sheets.

Forestry Branch.—Photography over forested areas in Maritime Provinces; vertical and oblique photography in the Petawawa forest reserve; patrols for the detection and suppression of fires over the forested areas surrounding lakes Winnipeg and Winnipegosis; continuation of the air patrols of the Crowsnest, Bow River, and Clearwater forest reserves.

Canadian National Parks.—Photography of historical sites in Maritime Provinces, Ontario, and Quebec; fire patrol for Waterton Lakes, Rocky Mountains, and Kootenay parks; photographic reconnaissance in unsurveyed portions of the Jasper Park area.

Water Power and Reclamation Service.—Photographs of power sites in Nova Scotia, New Brunswick, Ontario, Quebec and British Columbia.

International Boundary Commission.—Photography of International Boundary in southern Manitoba and southern Alberta.

Ordnance Lands Branch.—Aerial survey of the Rideau canal.

Rome-Melbourne-Tokio.

On July 16, the Marchese de Pinedo, accompanied by his mechanic, Campanelli, left Melbourne at 09.00 hours, and arrived at Sydney at 16.00 hours, where he was given an enthusiastic reception by the huge crowds that had assembled to welcome him.

It will be remembered that the Marchese di Pinedo left Sesto Calende, Italy, on a Savoia 16 *ter* flying boat (450 h.p. Lorraine-Dietrich engine), on April 21, in an attempt to fly to Tokio via Melbourne. He arrived at Melbourne on June 8, having covered 24,000 kms. in 49 days, or 145 flying hours, at an average speed of 170 km.p.h.

Since his arrival at Melbourne, he has completely overhauled his aircraft and engine.



THE JOY-RIDERS.—Mr. Fred Holmes (left) and Mr. J. D. Parkinson of the Berkshire Aviation Tours.

ROLLS-ROYCE

THE BEST AERO ENGINE IN THE WORLD

RELIABILITY

Some Successful Flights made with Rolls-Royce Engines:

Across the Atlantic	**1,890 miles**
England to Warsaw	1,050 miles
England to Finland	1,100 miles
England to Constantinople	2,160 miles
England to Sweden (and back)	2,450 miles
England to South Africa	6,281 miles
England to Australia	11,500 miles

These flights were accomplished without any change of engines en route

"The Britannia Trophy, presented by the Royal Aero Club for the best performance in the year, has been awarded for the year 1924 to Wing-Commander Goble and Flight-Lieutenant McIntyre for their flight round Australia in a Rolls-Royce-Fairey."

"Daily Telegraph," March 26th, 1925

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AVIATION IN NEW ZEALAND

New Zealand has so far done little in aviation and in spite of the valiant efforts of one or two pioneers, such as the Walsh brothers, who in the early days built their own machines, taught themselves to fly and subsequently ran the New Zealand Flying School, and the considerable number of demobilised R.A.F. officers who returned to their home country after the War 1914-18, the New Zealand Government up to recently has refused to take any interest in aviation. This is obvious from the fact that in the Government estimates for 1921-2-3 the total sum of money voted for aviation amounted to £9,036, chiefly devoted to the expenses of the Air Board which was appointed in 1920 and has done absolutely nothing to justify its existence.

At the end of 1918 there were two civilian aviation schools in New Zealand, the Canterbury, N.Z., Aviation Co. at Sockburn, using Caudron biplanes, and the N.Z. Flying School at Kohimarama, run by Walsh Bros., using Boeing seaplanes and Curtiss flying boats. These two schools had, with the endorsement of the Defence Department and the financial support of a few patriotic citizens, undertaken the preliminary training of pilots during the war and an instance of the good work done is shown by the fact that the Canterbury Aviation Co. alone had passed through their school 170 qualified pilots at the time of the Armistice.

In 1919 Wing Cdr. Vere Bettington, C.M.G., arrived in New Zealand to act as advisor to the New Zealand Government and he imported with him two D.H.4s and two Bristol Fighters. At the same time the Canterbury Co. purchased four Avro 504Ks for joy-riding work.

The Imperial Government at this time offered the N.Z. Government a gift of 100 modern service machines but this was declined.

Later in 1920 a second offer was made and this was accepted. This second offer consisted of 20 Avros and 9 D.H.9s.

In the meantime the two civilian companies were carrying on at a loss, with absolutely no support from the Government under the late Mr. Massey.

In July 1920 the Government decided to make some use of the gift machines and they therefore loaned five machines to a newly established syndicate at Timaru and the bulk of the remainder to the two existing firms, rent free.

Previously to this Messrs. Walsh Bros. and the Christchurch Co. operated in the North and South Islands respectively far enough apart to avoid interfering with each other's operations, but with the advent of the new syndicate, which proceeded to operate in both the North and South Islands with machines it obtained for nothing, private aviation in New Zealand died from strangulation.

With the exception of some experimental mail services operated by Walsh Bros. in the North and the Christchurch Aviation Co. in the South during February and March, 1921, civil aviation ceased to exist.

Finally in 1923 the Government was asked to take over the Wigram Aerodrome of the Canterbury Co. at a valuation and the chairman of the Company, the Hon. H. F. Wigram, donated £10,000 towards the purchase of the aerodrome. In all, his plucky effort to foster aviation in New Zealand must have cost him personally some £30,000.

The purchase of the aerodrome was finally settled in June, 1923, and at this time the Defence Department formed the N.Z. Permanent Air Force.

On the formation of the Permanent Air Force the Secretary of the Air Board, Capt. T. M. Wilkes, M.C., was appointed Staff Officer, Capt. L. M. Isitt, O.C. Wigram Aerodrome, who had under him Capt. J. L. Findlay, M.C., Instructor, Lieut. T. L. Denton, Stores Officer and Instructor, together with a staff of nine other ranks, all at Wigram Aerodrome, Sockburn.

This small staff was instructed to give refresher courses to ex-R.A.F. pilots and to undertake such civil flying as called for by the public.

At the beginning of 1924 the position was that the Government were operating at Wigram Aerodrome and that the N.Z. Flying School (Walsh Bros.) was still in existence at Kohimarama but doing very little flying. In addition to this there were two pilots using loaned Avros doing joy-riding in different parts of the country, but these have been called in and the practice will not be repeated.

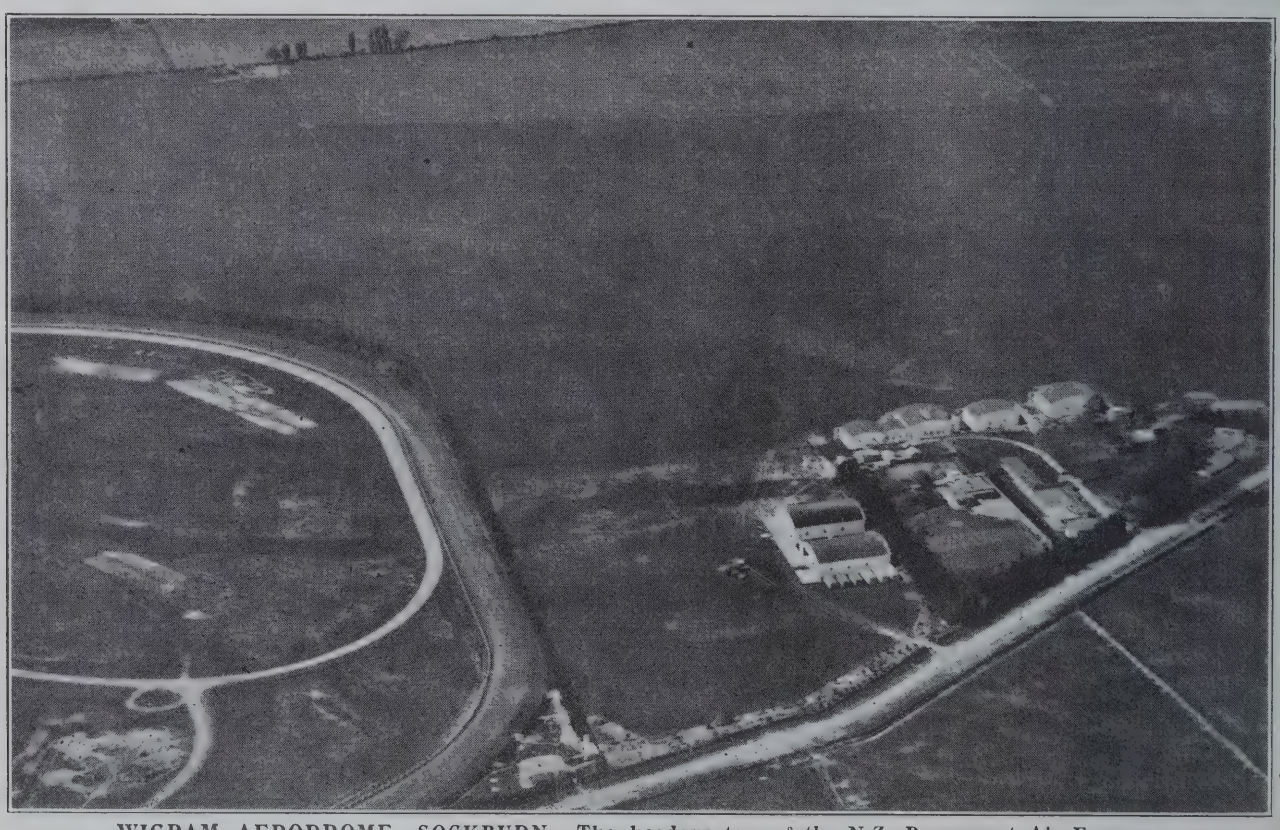
During August, 1924, the N.Z. Flying School approached the Government for an increased subsidy or failing that the purchase of their equipment. It was decided that the Government should take them over at a valuation and this was done. It has since been decided that the site is unsuitable from a Service point of view and it is intended to develop a combined sea and land base in Auckland, work on which will start this year.

With the final taking over of the N.Z. Flying School the whole of N.Z. Civil Aviation passed into the hands of the Government, the policy of the Government being to maintain a small Permanent Staff, a larger N.Z. Air Force (Reserve) at present made up of ex-R.A.F. pilots, and a N.Z. Air Force (Territorial) made up of young men of 18-22 years of age, the formation of the Reserve and Territorial branches being made necessary by the Compulsory Military Training Act in force in New Zealand.

All Civil Aviation is now undertaken by the Permanent Force at Sockburn. The idea of a Government Department running aerial round-abouts is at any rate quaint.

The following scale of charges has been drawn up by the Government.

Joy Rides :—Avro 504K, 5 mins. flight (two passengers) £1,



WIGRAM AERODROME, SOCKBURN.—The headquarters of the N.Z. Permanent Air Force.



RACE ROUND ENGLAND

SATURDAY, JULY 4th.

LONDON - BRISTOL - SHOTWICK
BLACKPOOL - HARROGATE - CROYDON

523 MILES.

This race was open to all entrants for the King's Cup Race who had the ill-fortune to be eliminated in the first circuit owing to fog which prevailed during the early hours of the event.

FIRST - - - D.H.51

120 *h.p. Airdisco Engine.*

Entered by Air Commodore J. G. Weir, C.M.G., and flown by Colonel The Master of Sempill.

AVERAGE SPEED - - 101.11 M.P.H.

SECOND - - D.H. "MOTH"

27—60 *h.p. Cirrus Engine.*

Entered by Sir Charles Wakefield, Bart., and flown by Mr. Alan J. Cobham.

AVERAGE SPEED - - 87.27 M.P.H.

FOURTH - D.H. "MOTH"

27—60 *h.p. Cirrus Engine.*

Entered by Capt. Geoffrey de Havilland, O.B.E., and flown by Capt. W. L. Hope.

AVERAGE SPEED - - 82.67 M.P.H.

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The Staff and pupils of the 1st Refresher Course, N.Z. Permanent Air Force Wigram Aerodrome, 1924. Reading from left to right, standing :—Capt. T. M. Wilkes, M.C., Staff Officer, N.Z.P.A.F.; Capt. J. L. Findlay, M.C., Instructor, N.Z.P.A.F.; Capt. L. M. Isitt, O.C., Wigram Aerodrome, N.Z.P.A.F. (late 7 and 98 Sqdns. R.A.F.); Lieut. T. L. Denton, Stores Officer and Instructor, N.Z.P.A.F. (late 114 Sqdn., R.A.F.); Lieut. G. Hood, N.Z.A.F.; Capt. M. McGregor, M.C., N.Z.A.F. (late 85 Sqdn., R.A.F.); Lieut. N. Benbow, N.Z.A.F. (late 24 Sqdn., R.A.F.); Lieut. A. C. Mercer, N.Z.A.F.; Capt. F. S. Drewett, M.C., D.F.C., N.Z.A.F. (late 23 Sqdn., R.A.F.); Lieut. W. Parke, N.Z.A.F.; Artificer Smith; Artificer Merrin; Serjt.-Fitter Simpson. Sitting :—Lieut. F. S. Gordon, D.F.C., N.Z.A.F. (late 85 Sqdn., R.A.F.); Capt. C. Musgrave, A.F.C., Class C., R.A.F. (late wing examining officer, Egypt); Lieut. F. Horell, N.Z.A.F. (late 85 Sqdn., R.A.F.); Lieut. D. C. Inglis, D.C.M., N.Z.A.F. (late 85 Sqdn. R.A.F.); Serjt. Townsend, N.Z.P.A.F.; Serjt.-Rigger S. Sorrell (R.N., Eastchurch, 1913).

10 mins. £1 per passenger, 15 mins. £1 10s. per passenger. Longer flights in the vicinity of the aerodrome by arrangement.

Cross-Country Flights :—Avro or D.H.9. Flights involving one journey being made empty, 3s. 6d. per machine-mile (mileage taken one way). Out and back flights, 2s. 6d. per machine-mile (mileage taken both ways). All flights to be reckoned as beginning from the aerodrome.

Waiting Time :—First three hours, no charge. For each subsequent hour 10s., provided that the maximum of £4 for any one day shall not be exceeded.

Training of Civilians :—For training up to the standard of Certificate "A" a charge of £50 will be made, provided that eight hours dual or solo flying is not exceeded. For each additional hour a charge of £2 will be made.

Civilians in possession of a private aeroplane on undertaking to serve for a period of three years on the N.Z. Air Force Reserve will be trained up to Certificate "A" for a sum sufficient to cover the cost of petrol and oil actually expended up to the time of completing the qualifying tests.

In the meantime it is hoped that the supply of pilots will be maintained by sending to England a number of New Zealanders on short service commissions in the R.A.F. who at the end of their term will be absorbed into the Permanent Staff or posted to the Reserve.

Major-General Sir E. W. Chaytor, Minister of Defence has been in England arranging details of this scheme with the Air Ministry.

So far as the N.Z. Permanent Air Force is concerned it is really smaller than its name but it is only a little over a year old and it would seem that the present foundation is one that will lead to efficient expansion, as soon as the importance of Air Defence is realised by the N.Z. Government.

The late Premier, the Hon. W. F. Massey, could see only one means of Defence—the Navy. And at present the N.Z. Air Force is administered by the Defence Department, that is, the Army, but they realise the importance of the Air.

So far, the chief difficulty has been money, and it is hard to get the Government to vote money for anything from which they cannot see an immediate return.

As regards Civil Flying very little has been done in cross-country flying. A few odd trips carrying doctors, a few inspection trips of land or forests, and some passenger flights to catch boats or during strikes, covers the whole.

The reason for this is that New Zealand is a new country, and their communications between the main centres, particularly by railway, although not approaching the service of older countries, are ahead of the population, and where communications are bad the population of the district does not warrant an air service.

The following précis of an extract from a Report of the General Officer Commanding the N.Z. Defence forces covers the extent of the work of the N.Z. Air Forces during the early part of 1924.

The present strength of the N.Z Permanent Air Force is four officers and nine other ranks who with the exception of one Staff Officer at G.H.Q. are employed at Wigram aerodrome.

On appointment late in 1923 this staff immediately began the work of overhauling aircraft and engines in preparation for the annual refresher course which began on Jan. 31, 1924, and continued until Mar. 24, 1924.

The manner in which the old machines and engines stood up to the work is eloquent testimony to the care and efficiency of the staff.

In addition £273 was taken in fares for civil joy riding and cross-country flying during February and March, 1924.

During the period under review liaison has been maintained with the Land Forces of the Southern Command and many flights have been carried out for purposes of co-operation with the Signal Corps and Artillery Units.

The strength of the Reserve Air Force stands at 102 officers, and 48 officers were put through the first refresher course. The aircraft and equipment, consisting of machines gifted by the British Government in 1919, are rapidly becoming unserviceable. Two Bristol Fighters are on order but six new training machines together with a flight of two-seater machines of Service type are required for Wigram.

Both seaplanes and land machines are essential for the defence of the commercial port of Auckland.

Suitable aircraft will need to be purchased for the new air station at Auckland when it is established.

For the purposes of economy it is necessary that the site of the Auckland Air Station should be (a) Suitable for the combined use of land and seaplanes, (b) Within a land defence system, and (c) Easily accessible by land and sea transport.

AERIAL SCHEME FOR POLAND.

At the initiative of the Polish Government a conference was held recently in Copenhagen with a view to establishing a permanent aerial communication between Warsaw and Copenhagen via Danzig-Puck, Rönne (Isle of Bornholme) and Malmö. This scheme forms a part of the huge aerial programme which aims at connecting Europe with Asia by air, in which this country is very largely interested. The communication line between Denmark, Sweden and Poland, which in its first stage will terminate in Warsaw, will later on be extended to Bucharest. The original line will be catered for jointly by Poland, Denmark and Sweden.

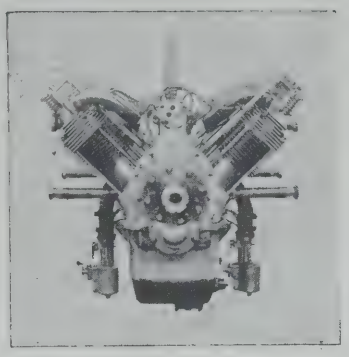
According to a preliminary agreement arrived at between the interested powers, the Polish Government will supply ten large hydro-aeroplanes of the latest type suitable for the transport of passengers and assuring a maximum safety, the other two having undertaken to provide radiotelegraphic, meteorological, and postal and first-aid services. The agreement in question will be submitted shortly for ratification of the respective governments.

BRITISH ADC LIMITED AIRCRAFT

THE AVERAGE SPEED OF THE WINNING MACHINE: D.H.51., Pilot, Col. The Master of Sempill, fitted with our new 120/140 h.p.

"AIRDISCO" ENGINE

was 101 m.p.h.



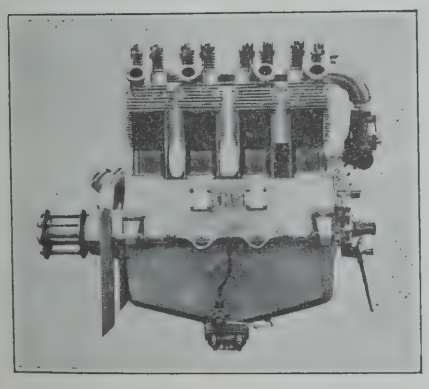
120/140 h.p. "AIRDISCO" Engine.



¶ Handicap Race promoted by the Royal Aero Club.

Course: 523 miles in a circuit, CROYDON—BRISTOL—SHOTWICK—BLACKPOOL—HARROGATE—CROYDON.

The "AIRDISCO" and "CIRRUS" engines, although not designed and built for speed, have again demonstrated the highest efficiency and reliability.



27/60 h.p. "CIRRUS" Engine.

Mr. A. J. Cobham, who was SECOND, on the D.H. "MOTH" fitted with our new 27/60 h.p.

"CIRRUS" ENGINE

AVERAGED 87.5 m.p.h.

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THE SPORT OF FLYING.

The past two weeks have provided two strikingly contrasted examples of the nature and extent of the public interest in flying. On Saturday, June 27, the roads leading to and from Hendon were practically blocked by traffic attempting to reach or to get away from Hendon Aerodrome. Several thousands of cars and something like 100,000 spectators actually reached and entered the aerodrome, and by far the greater majority of these paid sums ranging from 10s. to 2s. each to watch the R.A.F. display.

On Friday and Saturday, July 3 and 4, the Royal Aero Club conducted the annual race for the King's Cup, starting and finishing at Croydon Aerodrome. No noticeable congestion of the traffic was observable on the roads in the vicinity of the aerodrome. There may have been—at the most crowded moment—some 50 persons present in the paying enclosure, of whom it is safe to say not more than ten had paid for admission. There may have been another 100 or so in the free enclosure and perhaps an equal number in the roads around the aerodrome.

It is only fair to say that at some of the intermediate controls considerably larger crowds assembled. It is reported that several thousands of people assembled at Harrogate quite early on Friday morning and that visible aggregates collected at some of the other controls. Such information as is available suggests that those who were present at the provincial controls were thoroughly dissatisfied with the entertainment provided.

Nevertheless, taken on the whole, the only conclusion that could properly have been drawn from the attendance at the King's Cup race would be that the British public took no interest in flying. Yet that conclusion is clearly negatived by the attendance of the previous Saturday at Hendon.

Why Big Races are Dull but Necessary.

The Royal Aero Club has previously been criticised very severely for its policy in regard to the conduct of races—particularly in connection with the race for the King's Cup, and other great races of this nature, on precisely this ground of their failure to attract the public. It must be said that a good deal of this criticism has been extremely ill-founded. There are very good reasons why races of such a type as that of last week should be held. This particular event was marred by the foul conditions of Friday morning which forced all the earlier starters down into the worst and foggiest parts of the district north of London and left only three effective competitors in the race.

Despite this fact the results of the race will not fail to attract a very considerable amount of attention in aeronautical circles throughout the world. The winner, despite the fog, covered 1,610 miles in under 11 hours 30 minutes, an average speed of 140 m.p.h. On the second day unhampered by fog he covered 805 miles in 5 hours 18 mins., at a speed of a little over 150 m.p.h. With the one exception of Lt. Maugham's "dawn to dusk" flight across North America one can remember no flight of anything like equal length which approaches this in the matter of speed.

The whole evidence of the King's Cup race and of the consolation race on the Saturday for those who were defeated by the weather of Friday morning provides a very high testimonial to the reliability of both British aircraft and engines, and the performances achieved do prove that under comparable conditions British aircraft designers can hold their own with those of other countries in the matter of performance.

Had the weather on the Friday been reasonably good there is little room for doubt that the race would have done very much more to revive the prestige of British aircraft abroad, and to some extent to compensate for the very poor present showing of British machines in regard to world records and the like.

Now it is practically impossible to arrange a race over distances of several hundreds of miles which can be made into a popular public spectacle, particularly a race for machines capable of speeds such as that maintained by the winner of this particular event. Nevertheless it is desirable that such races should be held not for the delectation of the general public, but for the prestige of the British Aircraft Industry throughout the world at large.

But Interesting Races are Equally Necessary.

At the same time there is still very good ground for discontent with the Royal Aero Club's management of its racing programme. The British Aircraft Industry for its full development needs not only advertisement of the quality of its products which can be appreciated by potential customers at home and abroad of the type which is given by great races of the nature of the King's Cup. It needs also the awakening of the widest possible public interest in flying.

That the seeds of such an interest exist is amply shown by the annually increasing attendance at the Royal Air Force Pageant or Display, but it is certainly desirable that that interest should be fostered a little more frequently than once per annum, and it is fair to say that the Royal Aero Club has signally failed to do its share in the effort to interest the general public.

What the Public will go to see.

The public will come to any reasonably accessible place to see flying. They will come in large numbers provided there is plenty of flying to watch, and a programme of events which they can to some extent understand and appreciate. They will scarcely move across the road to watch a score-board and to observe aeroplanes arriving at an aerodrome at intervals of hours or so. The story of the King's Cup race of this year—as properly told—does make quite interesting and exciting reading even for those who do not know a Siskin from a Moth by sight, but by no possibility could it have been made an exciting spectacle.

When recorded in print 160 m.p.h. sounds exciting, but it is less exciting to stand about an aerodrome while a machine some hundreds of miles away is making that speed than it is to watch a 504K Avro pottering round within sight. And the public will come in larger numbers to watch an Avro flying round continually within sight than they will go to Croydon to await the return of competitors in the King's Cup.

Very long ago one expressed the opinion that public interest in aeroplane meetings would never be revived until a continuous programme of flying—always within sight of the aerodrome—could be provided somewhat on the lines of the pre-war week-end meetings at Hendon. And it was pointed out that most modern high-speed aircraft could not safely be raced round the sticks, and that for the revival of sporting flying which would attract the public it would be necessary to produce low-speed machines which would race, if not round pylons in an aerodrome, at least round a course so restricted as to keep the whole affair in view and to devise some form of class rating which would permit such machines to race on level terms and without exaggerated handicap allowances.

Such machines now exist—if not in large numbers at least in numbers sufficient to provide quite interesting sport—and to draw quite remarkable gates under favourable conditions. The Royal Aero Club has done little or nothing towards making use of the opportunities provided by these machines.

Difficulties of the Aero Club.

The Royal Aero Club is not alone to blame for this neglect. Some of the most vigorous critics of the club's policy in regard to racing have done their best to damn the light aeroplane as a useless and foolish waste of time and money. Even if it were admitted that existing light aeroplanes were entirely useless for any more serious business one believes that four light aeroplane meetings a year at either Hendon or Croydon—as a method of enhancing public interest in flying—would amply have recompensed the British Aircraft Industry for all the money which has been spent in producing such machines so far. As it is quite a number of such machines have simply rotted away since the first Lympne meeting, and can be written off as completely unproductive expenditure.

When the light aeroplane movement originated one had hopes that the Air Ministry would have regarded it as beneath notice. Unfortunately certain of those from whom somewhat more sense might have been expected have favoured the light aeroplane with their contempt and the Air Ministry has taken a deadly interest in low-powered aircraft. As a result of the latter phenomenon it is nearly as impossible to fly a light aeroplane to-day as it is to fly any other kind of aircraft. Moreover there is a certain lack of cordial relations apparently between the liquidator of the Grahame-White interests at Hendon and the Air Ministry, which makes it impossible at present to use Hendon for meetings, and Imperial Airways objects to them at Croydon. This naturally renders it more difficult for the Aero Club to arrange reasonably attractive meetings—but even so it cannot be said that they are doing the best that is possible.

Of Lympne in August.

Take for instance the forthcoming light aeroplane meeting at Lympne. Now Lympne Aerodrome in itself is by no means an unattractive spot, and it is possible to run races there under conditions which will keep the machines fairly well in view during the whole of the proceedings. It is not however particularly accessible. In the ordinary way there is no great difficulty in reaching it by car, but if a wide-spread public interest is to be aroused in flying that interest must be spread over a wider circle than that of the car-owning class. It is of course quite true that people who cannot afford cars are not likely purchasers of aeroplanes for their own use—but it is a mistaken and a narrow-minded view to imagine that only those who are potential direct customers for aircraft can usefully be interested in flying. After all it is not only those who can afford cars who contribute to the maintenance of the R.A.F., and the future of aviation will

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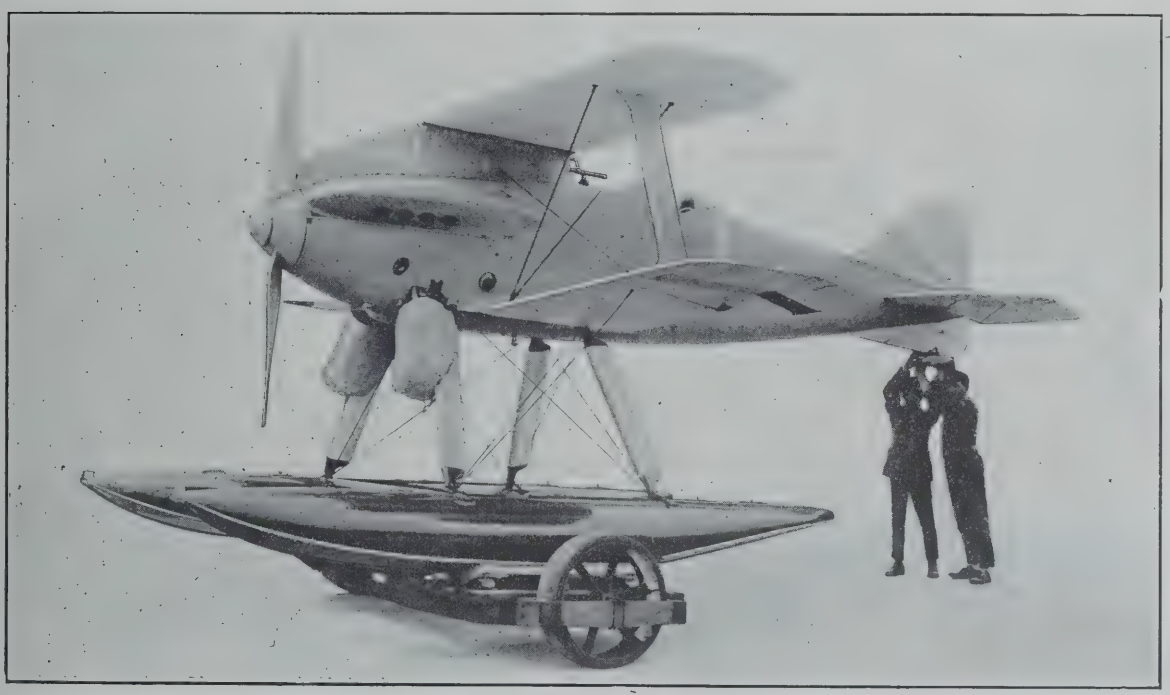
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(Machine in each of above events fitted with Napier Lion engine.)

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depend very largely on the extent to which general public opinion can be moved to regard flying as a commonplace event.

For the purpose of such experimental contests as those of the last two light aeroplane meetings Lympne has many good points. The light aeroplanes which took part in those contests were scarcely ripe for public exhibition. There was the possibility that either meeting might have proved a fiasco and therefore to have held the meeting under conditions inviting an undue attendance of the general public would have been unwise. Everybody who was seriously interested in light aeroplanes could manage to get to Lympne for these occasions, and it was not a very serious disadvantage that relatively few others were likely to go out of their way to get there.

But this year's contest is quite another matter. It is definitely a meeting which will have no value if it does not draw the general public. Presumably because this fact has been recognised the meeting has been fixed for the Bank Holiday week-end.

Presumably some fair number of spectators of the general public class may be expected to be drawn from among those who would in any case have been spending that week-end in Hythe, Folkestone and other places in the vicinity.

But precious few people who are not already more or less on the spot will journey to Lympne for the express purpose of seeing the meeting. For the August Bank Holiday week-end is notoriously that on which travel by any method is attended by the maximum possible discomfort, and accommodation away from one's own home is most difficult to obtain and most unsatisfactory when obtained.

Nothing except the fact that the daily supply of bread and butter more or less depends upon being at Lympne on this occasion would induce the present writer to proceed there for this event. However excellent the flying may be the discomforts of main road or rail travel during this particular period, and the frightfulness of having to stop in an English hotel in the vicinity of a holiday resort over Bank Holiday would overweigh any consideration but that of sheer necessity, and it can scarcely be doubted that these considerations will produce their due effect where the necessity does not exist.

Even were the meeting held on some less ill-chosen date Lympne is too far from any large town to become a popular resort. Three Saturday afternoon meetings—either at Hendon or at Croydon—would do much more to stir public interest than any Lympne meeting of three days will ever do—provided always that flying is going on for the whole time.

There is no reason why such meetings should be confined to light aeroplanes. Long distance cross-country races starting and finishing at the aerodrome could quite well form part of the programme, provided that in the interval between start and finish a continuous programme of minor events was arranged, so that there was always something for the crowd to watch.

But the combination of Lympne and Bank Holiday is just stupid—unless it is believed that public interest in the vicinity of Folkestone alone is worth fostering.—W. H. S.

[Bread and butter, and a bun, have been provided and W. H. S. has been given leave to please himself how he spends his Bank Holiday. The reason for Lympne is the proximity of Sir Philip Sassoon and Lord Edward Grosvenor.—Ed.]

THE IRRAWADDY SURVEY.

The Aeroplane has just received a copy of Burma Forest Bulletin, No. 11, published January 1925 by the Superintendent of Government Printing, Burma, which contains fairly full reports on the survey of the Irrawaddy delta carried out in 1924 by Mr. Ronald Kemp under contract with the Government of Burma.

The area covered by the original contract amounted to approximately 1,000 sq. miles, subsequently extended by subsidiary contract to 1,350 miles. This area consisted practically entirely of forest—much of it extremely swampy, and intersected by innumerable creeks in which a rapid current ebbs and flows, many of them being navigable only by small boats at high tides.

It is estimated that an accurate ground survey of this area would have taken three to four years and would have cost at least 500 rupees (£33) per square mile. The work of photographing the area took a little over a month and cost 210 rupees (£14) per square mile.

The total cost, including ground control, preparation of mosaics, and fair mapping is given as 274 rupees (£18 5s.) per square mile. The saving is therefore about £15 per sq. mile, or a total of about £20,000 in cost, quite apart from the saving of two or three years in time.

It has to be recollected that this survey bore the whole cost of the equipment required to carry it out, and that future work in the district can be continued at a correspondingly reduced cost.

Over and above this the amount of detail given by the aerial survey is far in excess of that which could have been obtained by ground methods even at a cost considerably in excess of that above suggested.

The work carried out by Mr. Kemp was confined to actual photography and the compilation of uncorrected mosaics. The provision of a ground control system and the rectification of the photography to this control system and the drawing of a fair map was undertaken by the Survey of India.

The ground control was provided by traverses along the sea-coast and up the main rivers. A very considerable amount of difficulty was encountered even in this work.

The aerial work consisted almost entirely of the production of strip mosaics by vertical photography. A certain number of oblique photographs were taken, but they were of no value for mapping purposes as narrow creeks overhung by forest were invisible.

Generally speaking the method experimentally investigated by Prof. Melville Jones at Cambridge was adopted for the taking of photographs. That is to say that the work depended for its success on the ability of the pilots to fly straight and level on a predetermined course.

The negotiations for the work were concluded too late to permit of making use of the best weather conditions, and consequently a good deal of very bumpy weather was encountered. Nevertheless out of nearly 4,000 plates exposed, only one had a tilt of over 5 deg. and 90 per cent. of the plates had tilts of less than 2 deg. The maximum departure in altitude from the mean of any one strip was 200 ft. (average



An Avro Lynx Seaplane (convertible to wheels). One of a number of this type recently supplied to the Greek Government for advanced training.

B T-H

1st, 2nd, and 3rd

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And it is interesting to note a further proof of their reliability, in that all machines which completed the course were fitted with magnetos manufactured by

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altitude 9,400 ft.) and departures of over 50 ft. were exceptional.

It would appear that the results of the survey have proved satisfactory to everyone concerned, including, it is pleasing to record, Mr. Kemp and his associates in the work. The reports of Forest officers on the utility of the photographs for classifying the forest timbers in the area show that a very great deal of information is immediately available, and suggest that with further experience in interpretation the value of aerial photography for this purpose will be greatly extended.

The results obtained are undoubtedly extremely valuable, and should be sufficient to lead to some considerable demand for aerial survey work in India. It has however to be recollected that this particular survey was confined to flat country, and that the problem of mapping hilly districts from the air is very different. Nevertheless the difficulties presented by hill country are not insoluble—they have in fact already been met in great part—and the obvious advantages of aerial survey, particularly in the matter of time occupied, are scarcely likely to be overlooked now that they have been so conclusively demonstrated.

Altogether the undertaking reflects the greatest possible credit on Mr. Kemp and his staff, notably Major Kennedy-Cochran-Patrick and Flg. Off. J. Durward, for the way in which a very difficult piece of work was carried out without hitch or mishap.

It is pleasing to record that Mr. Kemp has already, as a result of the success of this survey, received orders for and has carried out three further aerial surveys in Burma, besides a survey of Sarawak.

A New Small Radial Engine.

A new small, air-cooled, five-cylinder, radial aero engine has been developed by the Kinney Manufacturing Co., of Boston, Mass., from specifications issued by the U.S. Navy Department. This engine, which has developed 80 h.p. at 1,800 r.p.m., weighs 208 lbs., or 2.6 lbs. per h.p. and has been produced for use in small aircraft intended for ship-board use. The engine contains a number of novel features the most noteworthy being the elimination of push rods for the valve operation; these being replaced by a hydraulic valve gear utilising the lubricating oil. The first engine has undergone all preliminary bench tests and is now being submitted to further tests at the Naval Aircraft Factory. Four additional engines are being completed and these will be installed in aircraft for their further flight development.

Fire Extinguishing on Aircraft.

An interesting demonstration was given at Croydon on Saturday, July 4, of the Béchard fire extinguisher. This extinguisher was described among the other Paris Show exhibits in the AEROPLANE for December 31, 1924. It may be recalled that essentially the system consists of a reservoir of carbon-tetra-chloride under pressure coupled up through a valve to a distributing system which sprays the fluid over the carburettors and other likely seats of fire.

The control valve, instead of being manually operated is worked by a temperature relay. A series of pipe coils filled with a volatile liquid (in this case petrol) are arranged in places where fire is likely to occur. When the temperature rises the liquid boils, the vapour pressure operates a piston in a cylinder and opens the valve. In addition the relay is arranged to cut off the petrol supply and the ignition.

The arrangement has been fitted to an S.E.5 with a Viper engine. The space behind the engine was largely filled with well-oiled cotton-waste and a considerable quantity of loose petrol was arranged about the engine compartment. Also petrol cock was opened which allowed petrol to run over th middle of the engine, thus simulating a broken petrol pipe.

The engine was then run up, and a flaming torch applie Within a couple of seconds the interior of the engine cowlin was a mass of flame. Then the engine stopped dead, the was a hiss and a burst of steam and smoke and the fire w out.

M. Richard, of Brussels, who is well-known all over th Continent for his good work in selling British aircraft an engines to the Governments of nearly all European nation is interested in this extinguisher. Not only is M. Richard judgment above criticism, but his connection with the fir is sufficient guarantee that the firm's business methods a all that they should be. Therefore one commends the inve tion to the attention of all concerned with aviation.

The Béchard Extinguisher is handled in France by th Société Anonyme Minimax, 4, Rue Huntziger, Clichy (Seine France. It has been adopted by the Belgian Aeronautiqu Militaire and by the S.A.B.E.N.A., for use on their thre engined Handley Page transport machines.

New Technical Literature.

The Royal Aeronautical Society.—The Aeronautical Journal, No. 1 Vol. XXIX, June, 1925. Contents:—Notices; Papers; "Son Medical Aspects of Air Transport," by C. B. Heald, C.B.E., M.I M.R.C.P.; "Modern Zeppelin Airships," by Dr. Eckener. Pri (to non-members) 2s. 6d.

U.S.A. National Advisory Committee for Aeronautics, Report No. 201. The Effects of Shielding the Tips of Airfoils. By E. G. Reid.

Report No. 206.—Non-metallic Diaphragms for Instruments. By H. Eaton and C. T. Buckingham.

Report No. 207.—Aerodynamic Characteristics of Airfoils at Hig Speeds. By L. J. Briggs, G. F. Hall and H. L. Dryden.

Report No. 213.—A Résumé of the Advances in Theoretical Aer nautics made by Max M. Munk. By J. S. Ames.

Technical Note No. 216.—The Velocity Distribution caused by a Aeroplane at the Points of a Vertical Plane containing the Spa By M. M. Munk.

Technical Note No. 217.—Note on the Air Forces on a Wing cause by Pitching. By M. M. Munk.

Technical Note No. 218.—The Estimation of Airplane Performanc from Wind Tunnel Tests on Conventional Airplane Models. E E. P. Warner and Shatswell Ober.

Technical Note No. 219.—The Comparison of Well-known and Ne Wing Sections Tested in the Variable Density Wind Tunnel. B G. J. Higgins.

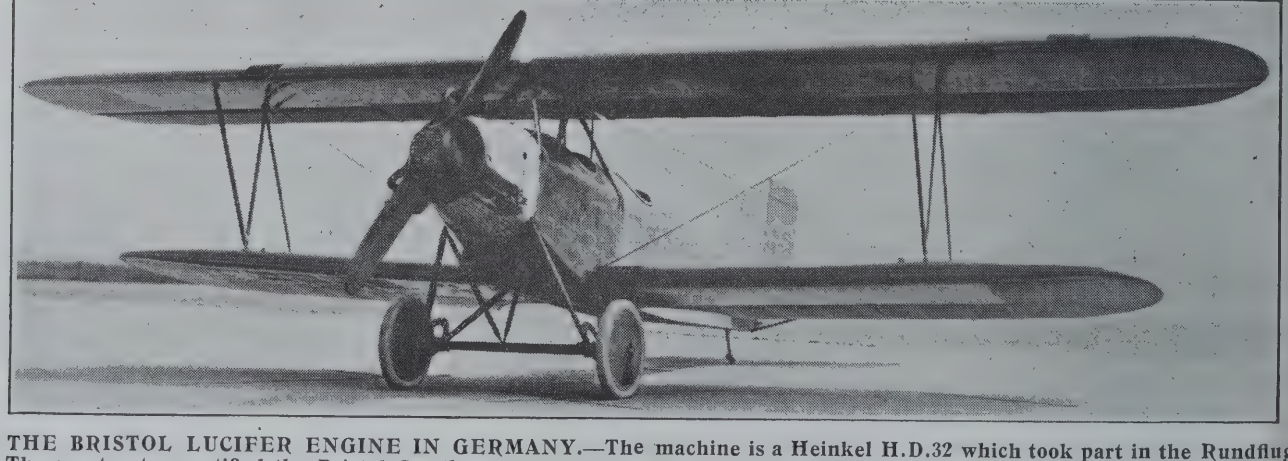
Aeronautical Research Committee: R. & M. No. 962.—Discontinuou Flow Round the Edge of a Bluff Obstacle. By L. W. Bryant an D. H. Williams. Price 1s. net.

Burma Forest Bulletin No. 11.—Aero-Photo Survey and Mapping of th Forests of the Irrawaddy Delta. By R. C. Kemp, Maj. C. G. Lewis C. W. Scott, and C. R. Robbins.

Unsplinterable Spectacles.

Plain goggles of two or more plies of glass, cemented to a intermediate flexible medium which will not splinter, hav long been used by motorists and aircraft crews on account o the absence of any risk of injury to the eyes from glas splinters in a crash.

The London Optical Co., of 344/354, Gray's Inn Road W.C.1, are now able to supply worked lenses to any require formula, made from "Locsplint," a non-splinterable, two-ply glass. Thus those who have to wear eyeglasses or spectacle can now obtain the same freedom from risk of splinters i their glasses as has long been obtainable from ordinary gog gles, and can obtain goggles for flying or motoring, fitted wit correctly-worked lenses for their personal ocular aberrations.



THE BRISTOL LUCIFER ENGINE IN GERMANY.—The machine is a Heinkel H.D.32 which took part in the Rundflug. The constructors notified the Bristol Co. that the Lucifer ran perfectly throughout the contest, and that they are greatly impressed by its reliability and efficiency.


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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per day.—Monday, 29; Tuesday, 25; Wednesday, 24, Thursday, 25; Friday, 22; Saturday, 24; Sunday, 16.

IMPERIAL AIRWAYS LTD.

London—Paris—Zurich; London—Ostende—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 80, passengers 406, freight 17 tons.

AIR UNION:

Paris—London: Machines 56 passengers 363, freight 10 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 25, passengers 104, freight 2 1-5 tons.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 4, passengers 16.

SPECIAL MACHINES:

Nil.

Total number of trips by British machines: 80, carrying 405 passengers. Foreign machines: 85, carrying 483 passengers.

Comparative Figures:

For week ending July 19:

Machines, 165; Passengers, 888; Crews, 218; Total personnel, 1,106.

Corresponding week, 1924:

Machines, 199; Passengers, 991; Crews, 250; Total personnel, 1,241.

Corresponding week, 1923:

Machines, 121; Passengers, 604; Crews, 194: Total personnel, 798.

Corresponding week, 1922:

Machines, 152; Passengers, 411; Crews, 256; Total personnel, 667.

Corresponding week, 1921:

Machines, 115; Passengers, 430; Crews, 137; Total personnel, 567.

Corresponding week, 1920:

Machines, 106; Passengers, 219; Crews, 137; Total personnel, 356.

Croydon Notes.

The position into which the Directors of Imperial Airways Ltd. have allowed that firm to slide by not acquiring any new machines, is becoming worse and worse. On Saturday, for instance, while the Air Union carried 50 passengers between London and Paris, Imperial Airways only had enough machines to carry 14 on that route. It is really getting too absurd for words.

A number of people who desired to go by air to Paris, had to be refused or turned over to the French lines. And yet Imperial Airways have been in existence for 16 months, and are receiving £100,000 per annum of the taxpayers' money. There are already rumours to the effect that they are, like Oliver Twist, asking for more. It is hoped on all sides that they will not get it.

If there is to be an increase in subsidy it should go to a rival concern whose directors will acquire new machines and will keep those up to date.

The management of Imperial Airways, as distinct from the Directorate, are undoubtedly doing their best with what they have got, but as there are no Israelites among the managerial Staff they and their ancestors have had no previous practice in the art of making bricks without straw.

During the week on the London-Paris service Imperial Airways ran 25 machines, carrying 172 passengers, whereas the Air Union ran 56 machines carrying 366 passengers. On all their services Imperial Airways ran 80 machines, carrying 405 passengers. That is to say the Great British combine of air lines did not carry half the number of passengers carried by one French line on its Paris-London route, and only carried 39 passengers more on ALL their routes than did the French line on its ONE route. And yet Imperial Airways asks for more subsidy. Why not tell their Directors to spend what subsidy they have on buying new machines. Owing to this shortage of machines Imperial Airways carried 200 less passengers this week than they did in the corresponding week last year.

K.L.M. had something of a record week last week, and with 25 machines they carried 105 passengers and over two tons of freight.

It is reported that the new Koolhoven monoplane, with three Siddeley Puma engines, which has been built for K.L.M., has been flying recently. It is said that it flies easily on two engines, and it actually flew quite a long way on only one engine.

The work on the enlargement of the aerodrome has now begun. The offices, etc., are to be built at the north side of the aerodrome, opening off the main road between Croydon and Sutton, and the present buildings are to be razed to the ground.

Thus machines will be able to start off into the prevailing wind without taxying. This should certainly be an improvement.

Doubtless an American administration would lift the existing buildings bodily and cart them on trollies to the new site. But the Air Ministry intends, one believes, to pull them to pieces, brick by brick, and rebuild them with the old material. In which case they will probably find that war-time bricks will only stand handling once.—G. D.

On Refuelling.

With reference to the note in THE AEROPLANE last week stating that a Goliath had been fuelled at Croydon in 27 minutes, it is interesting to note that the Staff at Lympne makes a regular practice of quick refuelling.

An instance of this may be seen from a recent occasion there, when three Goliaths landed within a few minutes of one another and took on board 90 gallons of petrol, 15 gallons of oil, and radiator replenishments. The time which lapsed between the landing of the first to the departure of the last was only 37 minutes. Also on another occasion a D.H.50 took on board 20 gallons of petrol, and the time which elapsed between landing and restarting was only seven minutes. The personnel employed consisted of two traffic hands and one Shell-Mex representative.

The staff at Lympne are always immensely keen, and it is gratifying to all to hear of their exceedingly smart work. This quick refuelling is the more remarkable, as petrol is supplied in two-gallon tins, and not in pumps, as at Croydon.

G. D.

German Air Lines in 1925.

Plans have been made for a considerable expansion of the German air lines in 1925. In all parts of Germany, local Government and municipal authorities are taking an active interest in the formation of local air transport and aerodrome companies.

Strong financial backing is provided by the local authorities in conjunction with local business interests, and efficient technical management is assured by linking up the local company with one or other of the big air transport organisations—the Deutsche Aero Lloyd A.G., or the Junkers Luftverkehrs A.G.

The following air lines are reported as having been decided upon for regular operation in 1925:—

Deutsche Aero-Lloyd Group:—Berlin—Hanover—Amsterdam—London (Deutsche Aero Lloyd in conjunction with Imperial Airways Ltd.); Konigsberg—Kovno—Moscow (Deutsche Russische-Luftverkehrs Ges.); Berlin—Copenhagen (Deutsche Aero-Lloyd in conjunction with the Danske Luftfartselskab); Berlin—Leipsig—Munich—Innsbruck (Suddeutsche Aero-Lloyd A.G.); Hamburg—Bremen—Dortmund—Frankfurt—Mannheim—Stuttgart—Zurich (Wurtemburg Luftverkehr A.G. and the Badisch-Pfalzische Luftverkehrs Ges.); Bremen—Hanover—Leipsig (Mitteldeutsche Aero Lloyd A.G.).

Junkers Group:—Berlin—Malmo—Copenhagen (Junkers Luftverkehr, in conjunction with Scandinavian companies); Konigsberg—Memel—Riga—Reval—Helsingfors (Junkers Nord-Europa Union); Berlin—Leipsig—Munich—Zurich—Geneva (Junkers Trans-Europa Union); Frankfurt—Furth—Nuremberg—Munich (Junkers Trans-Europa Union); Munich—Vienna—Budapest (Junkers Trans-Europa Union); Berlin—Hanover—Ruhr (Luftverkehrs Ges. Ruhrgebiet A.G.); Frankfurt—Karlsruhe—Zurich (Badisch Luftverkehrs G.m.b.h.); Berlin—Dresden (Saschische Luftverkehrs A.G.); Berlin—Breslau—Gleiwitz (Schleisischen Luftverkehrs A.G. and Gleiwitz Luftverkehrs A.G.), and, experimentally, a night service from Berlin to Stockholm.

Two new air lines which figure in the above list are the Suddeutsche Aero-Lloyd A.G. and the Luftverkehrs Gesellschaft Ruhrgebiet A.G. (Lurag). The former was formed in Munich in February, 1925, with a capital of 600,000 gold marks, the principal shareholders being the Deutsche Aero-Lloyd, the Udet Flugzeugbau G.m.b.h. and the Bavarian State (80,000 M.). The latter was formed at Essen in February, 1925, with a capital of 2,050,000 gold marks, to operate air lines in the Ruhr district, and the Junkers A.G. have worked out a scheme to connect up this district with Hanover, Berlin, Frankfurt, Amsterdam, Cologne, Leipsig, Bremen, and also Brussels and Paris.

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KING'S CUP RACE

Round Great Britain

(1,610 miles).

FIRST. ARMSTRONG WHITWORTH (SISKIN V).

Pilot: Capt. F. L Barnard.

SECOND. ARMSTRONG WHITWORTH (SISKIN IV).

Pilot: Sqn. Ldr. H. W. G. Jones, M.C.

THIRD. DE HAVILLAND (D.H. 37).

Pilot; Major H. Hemming, A.F.C.

CROYDON STAKES.

(523 miles).

FIRST. DE HAVILLAND (D.H. 51).

Pilot: Col. The Master of Sempill.

SECOND. DE HAVILLAND (D.H. 60).

Pilot: Alan J. Cobham.

THIRD. A. V. ROE (AVRO 504N).

Pilot: Bert Hinkler.

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Other companies formed this year are the Badisch Luftverkehrs G.m.b.h., with headquarters at Karlsruhe, the Schleisischen Luftverkehrs A.G., with headquarters at Breslau, and the Oberschleische Luftverkehrs A.G., with headquarters at Gleiwitz. These last three companies, with the Ruhr company, all belong to the Junkers group.

In High Asia.

The Times' correspondent at Allahabad in a message dated July 1 states :—

The correspondent of the *Pioneer* at Meshed reports that, notwithstanding the presence of a strong force of Persian troops in the district, the insurgent Turkomans have again raided caravans on the Teheran-Meshed road and looted them. An aeroplane has been sent from Meshed to Sabzawar to bomb the raiders.

The Times of July 6 states :—

According to the Meshed correspondent of the *Pioneer*, the aeroplane which had been sent to chastise the raiding Turkomans along the Teheran road reported that they had taken to the hills. After the return of the aeroplane the Turkomans re-emerged, and the Meshed-Teheran road is now closed to traffic in the affected areas.

Australian Progress.

The March issue of that excellent Australian publication, *Aircraft*, reports a very welcome re-awakening of Australian Service aviation.

In the first place the Directorate of Equipment has placed a number of reconditioning contracts, amounting in all to £17,500, with a number of civil firms. And additional work will be given out before the end of the present financial year.

This reconditioning concerns the "gift" equipment presented to Australia by this country soon after the Armistice and includes a number of D.H.9s and D.H.9as, Siddeley Puma and Liberty engines, Avro and S.E.5a wings, workshop lorries, photographic, water and wing trailers, Leyland lorries, etc.

The R.A.A.F. has also placed a contract with the Supermarine Aviation Works, Ltd., of Southampton, for six Supermarine Seagull Mark III amphibians (450 h.p. Napier Lion engines) for one of the new R.A.A.F. seaplane squadrons now in process of formation. This new seaplane squadron, together with a new Army co-operation squadron not yet formed, will be stationed at Richmond, near Sydney.

The Australian Prime Minister has announced that by the building of the two new cruisers in England instead of in Australia a saving of £818,000 will be effected, and with this saving an Australian seaplane-carrier will be constructed.

Beyond the facts that the new carrier will be of 6,000 tons displacement, will carry from 8 to 12 seaplanes, and that its total cost will be approximately £800,000, nothing further is known concerning its characteristics. It will be built at the Royal Naval Workshops, Cockatoo Island, Sydney, to designs supplied by the British Admiralty but entirely of Australian material and it will be laid down as soon as the designs have been received and the materials ordered.

Approval has been given for the immediate formation of a Citizen Air Force Squadron in the vicinity of Melbourne. The Squadron will be a composite one, consisting of three flights, one of S.E.5as, one of D.H.9s, and one of D.H.9as. The organisation will permit of rapid expansion into a squadron of each type in event of necessity.

In the meantime the squadron will form a nucleus for the expansion into three Citizen Air Force Squadrons as opportunity offers. The C.A.F. squadron will consist of a nucleus of permanent personnel and about 15 officers and 150 airmen of the C.A.F. will be required to complete the establishment.

The proposed period of training is 25 days per annum, of which 17 days will be spent in camp either at Point Cook or Laverton Air Stations.

For the present only qualified pilots will be accepted for commission in the C.A.F. and the Air Board is particularly anxious that officers with war experience will apply for appointment as their experience will be invaluable in assisting the organisation and training of the C.A.F.

A Pander Success.

On July 15, the Royal Dutch Navy accepted the first batch of Pander light aeroplanes which have been acquired for training purposes. These first machines were submitted to very rigorous acceptance tests, which included a series of flying tests carrying full load and fuel for six hours, after which they flew to the Naval training base at Den Helder.

The Pander light aeroplane, fitted with the 25 h.p. Anzani engine, created a very favourable impression at the last Paris Salon, and also at Croydon early this year. Since its first appearance it has been flown by a large number of British, French, Dutch, and Belgian pilots, all of whom have reported most favourably on its performance.

A Gordon-Bennett Fatality.

Lieutenant René Latu, of the French Air Service, died in Portsmouth Royal Hospital on July 10, from the effects of an accident during the Gordon-Bennett Race. The balloon *Grand Charles*, piloted by Lieutenant Latu and Lieutenant Jean Francin, fell into the Channel. Its two occupants were picked up by a Breton onion boat, after being immersed some hours, and were taken to Portsmouth. Both officers were in an exhausted condition. After a few days in hospital Lieutenant Francin recovered and returned to France. Lieutenant Latu's position had been critical almost from the first.



HAWKER ATHLETICS.—Mr. J. R. Ross of the Erecting Shop competing in the High Jump. In the background are Mr. T. O. M. Sopwith and Mr. F. I. Bennett, and Mr. Jones is on the extreme right.

Hawker Athletics.

The H. G. Hawker Athletic Club held their second Annual Sports Meeting under A.A.A. Rules on July 11, when a large crowd witnessed a very fine afternoon's racing. The Fitting Dept. again won the Sopwith Cup for the inter-departmental tug-of-war competition, whilst the Machine Shop retained the Sigrist Trophy in the Relay Race.

The Mallite Aggregate Cup was won by the Erecting Shop, whilst J. Ross won the individual aggregate prize, being successful in six events.

The Hon. Mrs. T. O. M. Sopwith, accompanied by Mr. T. O. M. Sopwith, C.B.E., Joint Managing Director, presented the prizes, and those present included Mr. and Mrs. F. I. Bennett, Messrs. Sellar, E. C. Newman, S. C. Nash, H. Chandler, Baigent, Pollard, Viney, Candler, Gamble, Spencer, Tom Smith, and J. Whitehorn (Organising Secretary).

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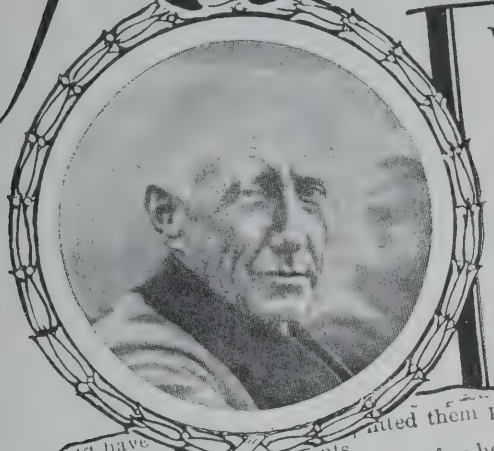
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Grease Pressure.

Now that the controls of aeroplanes are becoming more and more proper mechanical jobs and depend less and less on hoping for the best there is considerable interest in a note received from C. C. Wakefield and Co., Ltd., who besides making their famous Castrol oil also make Castrol greases.

The firm write that the attention of motor-car and motor-cycle manufacturers (to which one may add the attention of aeroplane manufacturers) should be directed to a common defect in modern grease-nipples as fitted for use with most grease-guns. In the old-fashioned, finger-screw type of greaser it was generally found that after the working part had been in operation for a while and it was time to give another few turns to the grease-cup it was found that a portion of the grease had been automatically fed to the bearing, thus showing the value of the grease-cup as holding a reserve supply. In most of the cups used for grease-guns no provision is made for any such reserve supply, except by one firm. And the Wakefield firm suggests that if a small reservoir were provided in the grease-plug itself there would be less necessity than there is now for frequent attention.

In this connection it is interesting to note that Tacalemit Ltd., who are perhaps the leading exponents of the grease-gun method of greasing, say that some types of their grease-guns hold a reserve supply of grease, particularly those adaptable to existing shackle bolts where the thread is cut in one piece with the bolt. In other types of Tecalemit plug for other parts Tecalemit Ltd. contend that it is preferable to carry the supply of grease in the gun and make the latter so convenient to use that the car is greased often and under high pressure instead of relying on a possible automatic feed on which reliance could not be placed where high pressure is concerned.

At the same time one agrees with the Wakefield firm that there are many places in a car where a reserve supply of grease is advisable and presumably such places also exist in the working parts of aeroplanes.

An Air Line Directory.

The International Chamber of Commerce has issued a very interesting Supplement to their Quarterly Journal giving a schedule of International Air Lines showing the route operated by each line, the name and address of the Company, and adding a few useful particulars in connection with the line. One believes that this is the first list of this kind to be published.

The pamphlet opens with a few general remarks on the uses and objects of air lines, and the conditions necessary for an air line to be of commercial interest. The whole is set out in a most clear and easily comprehensible tabular style, and should be just as useful to actual operators of air lines, as to those who are merely in search of information. As the pamphlet says, "the only lines quoted are those for which statistical information is available: a guarantee that they are actually functioning."

Readers of this paper who would be interested to have a copy of this Supplement can obtain one by applying to the Assistant Secretary, Mr. B. B. Elliott, The International Chamber of Commerce, British National Committee, 14, Queen Anne's Gate, Westminster, S.W.1, enclosing a penny stamp for postage. These copies are not issued for sale but the Department is willing to supply their few extra copies to anyone interested.

An Old Hand.

Many people who served in the old R.F.C. will remember that one of the few tailors who was able to cut the old R.F.C. tunics well was Mr. Bowden, who was at that time employed by a West-End firm, and very many of the best fitting of those tunics were the work of Mr. Bowden.

It is of interest therefore to learn that Mr. Bowden has now set up on his own account under the title of Bowden and Jones, at 29, Savile Row. His prices are very much below the majority of tailors both in and out of Savile Row, and his firm should prove very useful to R.A.F. officers and others both for uniforms and mufti.

A Change of Address.

Mr. Robert W. A. Brewer, who will be remembered as one of the pioneers of British aeronautical engineering, having been in charge of Mr. Grahame White's first aeroplanes in 1910, intimates that he has resigned his position as president and chief engineer of the Engineers' Development Company of Philadelphia and will continue his consulting practice at Ridley Park, Penna, Philadelphia.

Mortgages and Charges.

Northern Air Lines Ltd.—Particulars filed of £2,500 debentures authorised June 23, 1925, charged on the Company's undertaking and property, present and future, including uncalled capital, the amount of the present issue being £1,000.

PERSONAL NOTICES.

Birth.

BOWEN.—On July 17, at Nepicar House, Wrotham, Kent, to Noel, wife of Wing Cdr. J. B. Bowen, R.A.F.—a son.

Death.

WOOD.—On July 18, at a nursing home, Capt. Ernest Alfred Edward Wood, R.A.F. (retired), of Elmwood Crescent, Kingsbury, dearly-loved husband of Jessie Wood.

Marriage.

NICHOLLS—FAIRHOLME.—On July 18, at St. Mary's, The Boltons, South Kensington, by the Rev. H. R. Cox, Flg. Off. William Graham Nicholls, R.A.F., son of Mr. Thomas Nicholls, of Broadwindsor, Dorset, to Mary Ellen, daughter of Mr. George F. Fairholme, C.M.G.

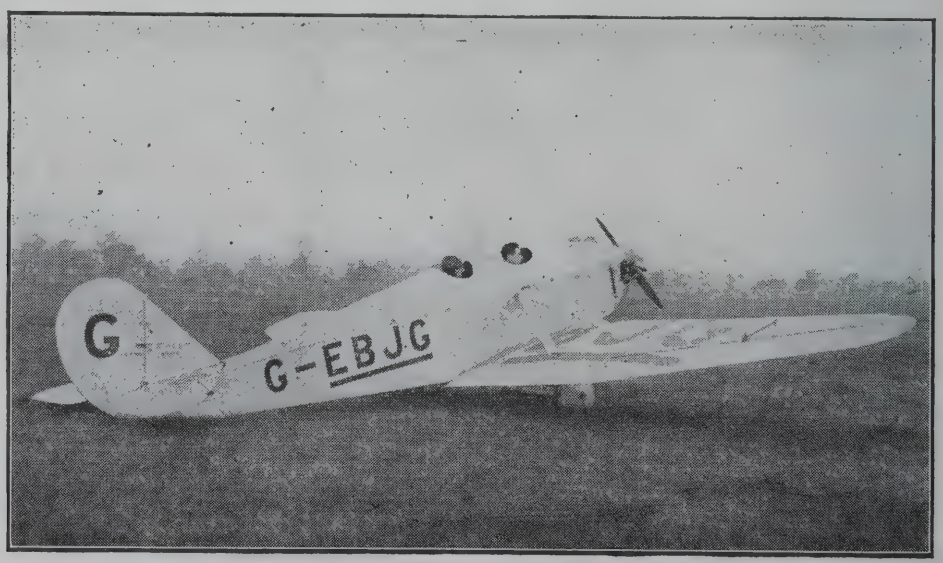
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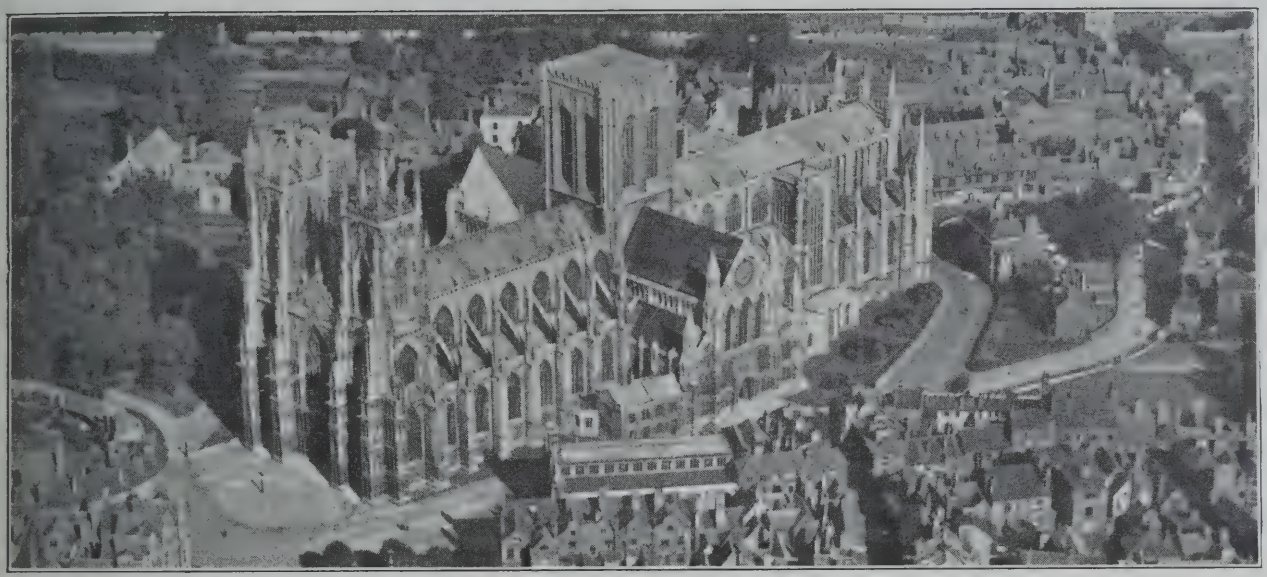
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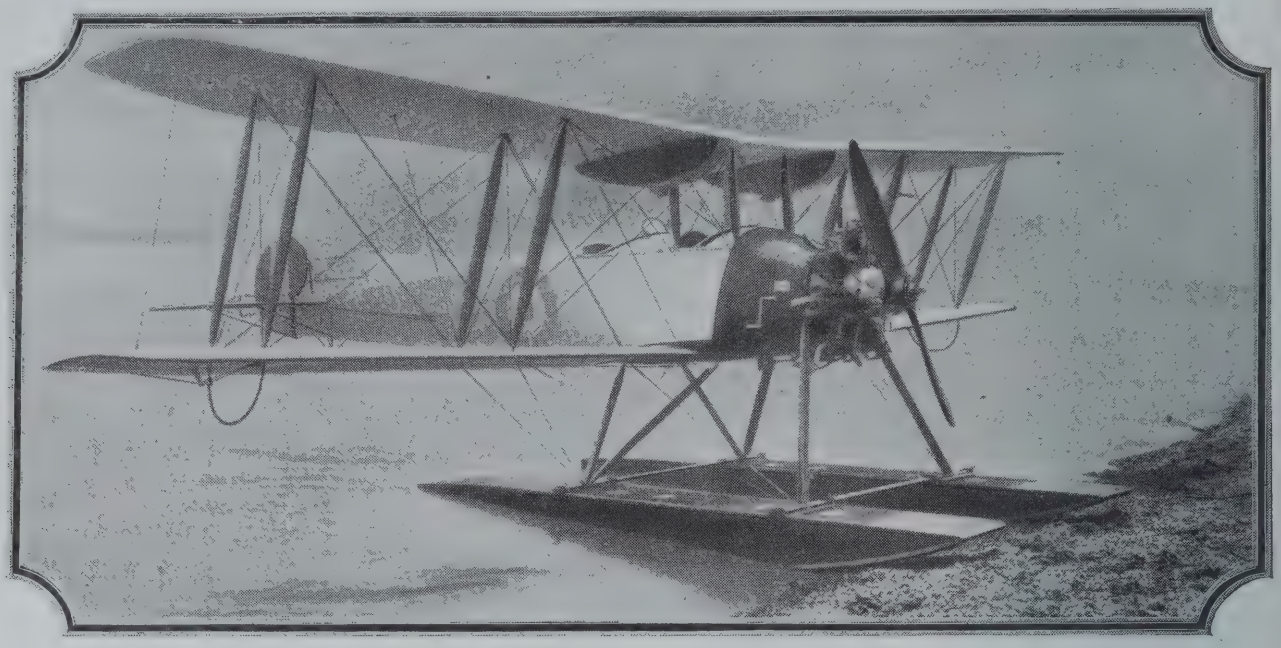
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Foreign, 3 months, 8s. 9d.; 6 months, 17s. 6d.; 12 months, 35s. Canada, 1 Year, $8.
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ON AIR RACING.

While this particular issue of THE AEROPLANE is in the hands of its readers, the Royal Aero Club will be holding its August Bank Holiday Meeting at the Government Aerodrome at Lympne—which place one may add, for the benefit of many English as well as nearly all foreign readers, is pronounced LIMM, in accordance with the charming incongruity of the English language. Therefore the time seems appropriate for a few words on air racing in general.

Having seen the rise to their highest point of four different methods of human transport by mechanical means—namely railways, steamships, bicycles and motor-cars—one claims to be able to preach from experience on the benefits of racing as a means of popularising any method of transport, and so increasing its commercial value.

The fundamental justification of racing lies in the axiom that "competition is good for trade," and the axiom holds good whether the competition is in the form of producing a better article or a cheaper article or merely in the form of advertising the article by means of racing.

Take the railway, for example. One is unhappily old enough to remember those days long before the War, when the three great railway companies, the London and North-Western, the Midland, and the Great Northern, assisted by their Scottish connections, used in the fall of the year to run special trains to Scotland for the grouse shooting. And the races between these grouse trains day by day at the appropriate seasons of the year, provided the contemporary newspapers with very nearly as much thoroughly sporting copy as did horse-racing.

These train races found out weak spots in locomotives and rolling stock and permanent ways and organisation. Also they definitely raised the average speed of our railway trains. The result is that to-day British trains are faster and more reliable and more comfortable than any others in the World. And this is still true despite the fact that by the grouping and quasi-nationalisation of our railways we have fallen back considerably from the days when competition between the different lines serving the same main points forced the managements to be efficient and improved the trade of the more intelligently managed railway systems.

In the steamship business the same thing occurred. Competition between the Cunard people and the Nord-Deutscher Lloyd increased the speed of steamers till the *Mauretania* was produced, and put up trans-Atlantic records which remain unbeaten. The old *Mauretania* still remains the fastest ship on the Atlantic and the most comfortable, although she was produced primarily as a racing ship.

The bicycle trade likewise owes a great deal of its success to racing. From about the year 1890 to 1900 or thereabouts the big cycle manufacturers and the big tyre firms ran regular racing teams and had regular managers and trainers of these teams. Quite a number of men who are prominent to-day in the motor-trade, and some who are prominent in the aircraft trade, first made their names as racing pilots on "push-bikes" or as managers of cycle-racing teams.

The greater the competition between the makes the better and lighter the bicycles became. And the excellence of the British-built bicycle of to-day is due almost entirely to racing.

MAKING A NAME.

Likewise the motor-car, with its small-bore, high-speed engine and its wonderful springing has been evolved almost entirely as the result of racing. And the pneumatic tyres of to-day, which put up such amazing mileages under ordinary driving conditions could hardly have been produced if they had not been tried out under the unfair strains of racing.

When one thinks of the modern car tyre, with its mileage of anything between 10,000 and 20,000 miles, and compares it with the tyres used by Mr. S. F. Edge on his Napier racer in the Gordon Bennett Race in Ireland in 1903, which fell to pieces and had to be replaced in something less than every hundred miles, one realises how much racing has done for material.

And when one remembers that in the earliest days of motor racing the Napier car won the Gordon Bennett Race in France in 1902 and the Rolls-Royce won the first Tourist Trophy Race in the Isle of Man and the Sunbeam has figured prominently in record making and racing more recently, one sees how much racing does for the mere name of a firm provided always that the name which has been made by racing is continually supported by producing material worthy of the firm's name.

Very much the same thing is happening in connection with air racing. The record-holding machines all over the World are almost invariably the best sellers as well. The Curtiss airplanes, with Curtiss engines which made most of the World's speed records last year justified their existence by getting the Curtiss machines and the Curtiss engines recognised by the U.S. Army and Navy as the best high-speed pursuit ships.

In France the Nieuports which won the Gordon Bennett and Deutsch Cup and beat World's records in their time were also the machines which were ordered by the French Army as their standard avion de chasse.

Even in England the Gloucestershire Aircraft Company after hammering away for several years with the Napier-engined Bamel as the best British speed machine has at last secured quite respectable orders for Gloucestershire Grebes as standard fighting machines. And the Armstrong-Whitworth firm having put up such very good shows in the King's Cup races of 1923 '24 and '25 have got equally respectable orders for night-flying fighters.

Similarly, the trans-Atlantic and Australian exploits on Faireys and Vickers machines have been of the highest value.

Furthermore in all British aeroplane races of the past three or four years, as well as in competitions on the Continent, the de Havilland Company, or de Havilland machines entered by the Aircraft Disposal Company, Ltd., have put up remarkably good performances, and to-day probably there are more D.H.s of one type or another in use by foreign air services and by the R.A.F. than there are of any other one make of aeroplane.

Consequently there seems to be quite good reason for arguing that racing pays purely as a commercial proposition and therefore there is the greater difficulty in understanding how it is that air racing finds so little support in this country, which has always been regarded all over the World as representing the highest possible level both in commerce and sport.

THE SPORTING CHANCE.

Nothing can be more sporting than air racing, for there is perhaps no sport into which the element of chance enters to such a degree. Of course there is a great deal of chance in any form of racing. Quite apart from a horse going wrong before a race or having an accident in the course of the race there is always the fact that the horse which would certainly win a race on a fine day in good going will as surely be beaten by a slower but stronger horse on a wet day when the course chiefly consists of mud. And motor-car racing is quite sufficiently chancy, what with magneto troubles and carburettor troubles and what Mr. Bill Stout, of Detroit, calls "plumbing troubles in the engine installation."

But in air racing there are added troubles from forced landings either owing to mechanical failure or the weather. And whereas in local racing such as horse racing or motor racing or yacht racing the managers of the meeting can tell whether the weather is fit to hold the races or not, in air racing the course covers such terrific distances that though the weather may be quite fit for racing at the starting and finishing points, it may be quite impossible half-way round the course.

So far as this present meeting at Lympne is concerned the Royal Aero Club certainly has an advantage which it had not in the King's Cup Race. The course mapped out at Lympne is so short that it is at any rate all inside the same weather area and consequently the stewards of the Meeting will be able to decide whether certain races must be called off or not. At the King's Cup Race the weather was thick at the start, but by no means impossible, whereas thirty or forty miles north nobody could get through the mist unless they flew blind and depended almost entirely in their navigating instruments.

A Difficult Question.

But even allowing for the chanciness of air racing, it is not such an uncertain pastime as to put it outside the class of rational sports. Neither its dangers nor its uncertainties are such as to prevent young and enterprising men from flying in air races or to prevent men with money from entering competitors for air races. Yet the curious thing is that the class of man who ought to take an interest in air racing, that is the young or middle-aged man with plenty of money, practically takes no interest in it at all.

It is true that a few young men of the right class do interest themselves in air racing. One may mention notably Lord Edward Grosvenor and Mr. Alan Butler and Dr. Whitehead Reid. But other men of their class are not even interested in the game let alone actual competitors.

After all, a racing aeroplane does not cost as much as a first-class race-horse, nor would half-a-dozen racing machines cost as much to maintain as does a racing stable. So why do not our rich men support air racing?

The reason cannot be entirely social. We who are concerned with aircraft may be a bunch of toughs, to use the expressive Americanism, judged by the standard of Burke's Nobility and Gentry, but at any rate we are quite as respectable as the people who train and run and ride and pull race horses.

One of the peculiarities of the horse is that though he is the noblest of animals he does seem to exercise a demoralising influence on all human beings who are concerned with racing him. The phrase "stable manners," is recognised as part of the English language, and the financial morals of the Turf are if anything rather worse than those of the City. And yet the best people in England do go a-racing and do back horses.

Improving the Breed.

The excuse of a great many people who run racing stables and breed race horses is that the English thoroughbred, which was apparently a Turkoman horse first introduced into this country about the time of the Crusades, had been for a few centuries an essential factor in the success of the British Army. Personally one believes, in spite of those who pin their faith to mechanical warfare, that the horse will be more important in the next war than it has been in any war of the past two hundred years. And therefore one is fully in sympathy with those who retain their faith in horse racing as an aid to our military supremacy or safety.

But arguing on those lines surely air racing should receive at least an equal amount of support from precisely the same classes of society as those who support horse racing. No army in the field in the future will be able to move a yard without adequate assistance from the air.

There are those who fondly believe that the next war will be fought and won in the air by air force alone. But at the finish, as one has so often said, the only thing that wins a war and keeps it won is a soldier with a rifle in his fist standing on his own flat feet in the enemy's capital city. That is why we never really won our war with Germany.

One is inclined to the belief that the War 1914-18 ended in the way which will ultimately prove to be the best, in that instead of a conquered Germany civilised Europe still has a strong nation of high courage as its barrier against Oriental Barbarism. But when the war against the Orientals does come it will have to be won in orthodox fashion by the armies of civilised Europe. And these armies will need enormous air forces to help them.

Quite apart from the armies themselves the independent air forces of the nations concerned will have to fight their own battles in the air with their own tactics and with their own strategy, independent of the strategy and tactics of the army on the ground and equally independent of the strategy and tactics of the fleets at sea, though naturally the general strategy of the armies, navies and air forces will have to be co-ordinated and the three Services will have to co-operate to a very great extent.

Bearing all this in mind one suggests that the time has come when people of real influence in the World should somehow be brought to interest themselves in air racing so that the breed of our aeroplanes may be improved just as the breed of our horses was improved by horse-racing.

On Whom the Responsibility?

The body on which falls the duty of interesting the right people in air racing is naturally the Royal Aero Club. Its title is sufficient proof that its reason for existence is recognised by His Majesty the King. And moreover His Majesty has for the past four years annually presented a Cup for a flying race. And still the right people do not come into the sport.

The reason is difficult to discover. When one looks at the Royal Aero Club's Annual Handbook and reads the list of Members of Council and sees that the patron is His Majesty King George V and that the Vice Patron is His Royal Highness the Prince of Wales and that the Council contains the names of dukes and earls and barons and admirals and generals and that the stewards include men of title and officers of high rank in all the Services one sees that there must be something radically wrong somewhere.

If the ordinary working committee of the Royal Aero Club approached each of these noble or otherwise exalted gentlemen privately and separately and endeavoured to impress on them that if they are so interested as to allow their names to appear as officers or officials of the Royal Aero Club they ought to take some practical interest in flying surely most of them could be persuaded to support air racing in a practical way.

As a matter of fact at least 90 per cent. of the Members of the Council of the Royal Aero Club have done absolutely nothing for aviation since their names have appeared in the book. And the Committee would do a service to aviation if at the next General Meeting of the Club it asked the Members to eliminate from the Council the names of all those who have taken no interest in the work of the Club.

Few of them even subscribe to the Racing Fund, which provides prizes for the Club's race meetings. And of the amounts which are subscribed, some can only be described by the French word *"derisoir,"* for when one compares the amounts with the known wealth of the donors they give one to smile.

The Need for A New Policy.

What is really wanted is a thorough overhaul of the management and organisation of the Royal Aero Club. If only some man of good social standing and influence who also happened to be something of a thruster and genuinely keen on aviation could be found to devote his whole time to organising and developing the Royal Aero Club along the lines for which it was originally formed, a real service would be done, not merely to air racing but to British Aviation as a whole and ultimately to the Royal Air Force which at the finish is the be-all and end-all of aviation.

So far as Civil Aviation is concerned that can well be left, as Mr. Winston Churchill said, to fly by itself. If air racing can be developed along the right lines then ordinary Civil Aviation will profit thereby in due course.

The trouble is that the Royal Aero Club is becoming less and less like the Jockey Club, which is what it ought to be, and is becoming more and more an ordinary little social club frequented by quite a small percentage of the whole membership. And it is not even a first-class social club at that, considering either the social status of the majority of the frequenters of the Club or the social amenities obtainable there.

If the Royal Aero Club continues for very much longer on its present path it will find a fate very similar to that which befell the Aero Club of America which simply fell to pieces from lack of support, while the work which it should have been doing was taken over by the National Aeronautic Association, which is not a club of any kind but purely a governing body analogous to the Jockey Club in this country.

Gentlemen and Players.

This little Meeting at Lympne will probably be a thoroughly enjoyable affair. But it will owe its existence entirely to people in the Trade. These Tradespeople, if the members of the British Aircraft Industry will forgive the use of the term for the moment, are on the whole thorough sportsmen. They run their machines absolutely straight and in a splendid sporting spirit. But they are not the people on whom British air racing ought to depend.

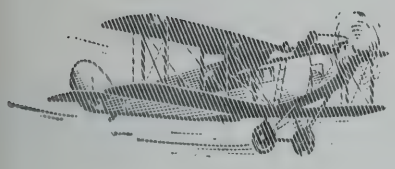
In cricket one of the greatest events of the year is the match Gentlemen versus Players. The Players are probably in the main as individuals just as much gentlemen as are the Gentlemen. And for all one knows some of the Gentlemen may be unwholesome cads. But there is the distinction.

The people in the Aircraft Trade who are doing all the racing in these days are in the position of the Players. What we want and what we must have in this country before air racing becomes what it ought to be is the class supposed to be represented by the Gentlemen in the cricket field.

We have a few, a very few, private owners of aeroplanes in this country but none of them can afford to maintain even one real racing aeroplane, let alone a racing stable. But there are in this country plenty of rich men who are gentlemen and not merely war-profiteers who could afford to run a whole racing stable of aeroplanes if only the Royal Aero Club could so raise its own social status as to induce men of that class to take an interest in air racing.

One hopes for every success with the Meeting at Lympne and one quite recognises the good work which is being done within their limitations by the people who have promoted and organised the Meeting. But one hopes still more that ere long some man will appear who will put air racing where it ought to be among the recognised sports of the British Empire.—C. G. G.

170,000 miles and still in service!

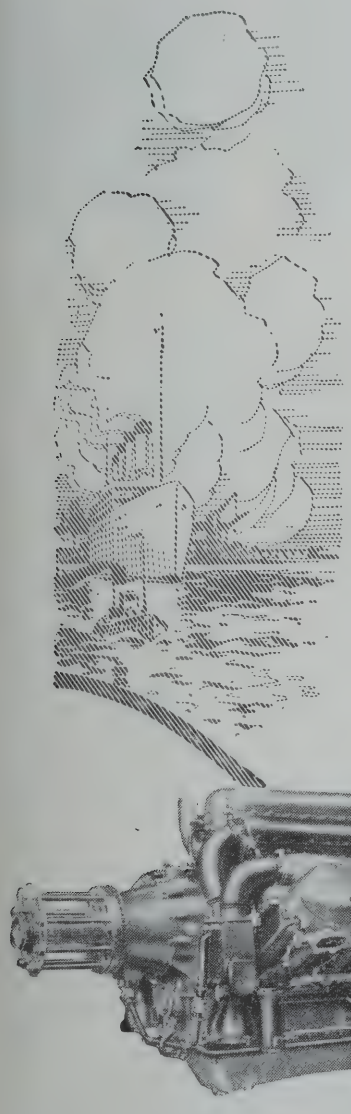


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The last three Aerial Derbys have been won by Napier engined Gloster machines. In 1923 over the circular course of 200 miles a speed of 192.4 m.p.h. was maintained.

THE LYMPNE AIR MEETING.

The following is a brief time table of events as they will occur. Owing to the number of entries it has been found necessary to divide the Light Aeroplane Holiday Handicap and the International Handicap into two heats. There will be additional prizes of £25 for the winner of each heat, and the first three in each heat will be eligible for the final.

SATURDAY, AUGUST 1.

Event 1—Light Aeroplane Holiday Handicap :
11 a.m., Heat 1; 12.15 p.m., Heat 2; 2.15 p.m., Final.
Event 2—3.30 p.m., Two-Seat Light Aeroplane Scratch Speed Race.
Event 3—4.45 p.m., Single-Seat Light Aeroplane Scratch Speed Race.
Event 4—Parachute Descent.
Event 5—Exhibition Flying by Mr. F. T. Courtney.

SUNDAY, AUGUST 2.

Event 6—All Day. Certified Performances.
Event 7—Parachute Descents.
Event 8—Exhibition Flying by Mr. F. T. Courtney.

MONDAY, AUGUST 3.

Event 9—International Handicap :
10 a.m., Heat 1; 12 noon, Heat 2; 2 p.m., Final.
Event 10—4 p.m., Grosvenor Cup Race.
Event 11—6 p.m., Private Owners' Handicap.
Event 12—Exhibition Flying by Mr. F. T. Courtney.
Event 13—Parachute Descents.

Notice of other events, such as Challenge Races, will be posted on the board at the meeting.

THE COMPETITORS.

SOME COMPETITORS.—From left to right, Flt. Lt. N. Comper, Sq. Ldr. R. A. de Haga Haig, and Wing Cdr. W. Sholto Douglas, all of whom are serving officers in the R.A.F.







Following is a list of the competitors at Lympne; the registered lettering of the machine comes first, then the name of the entrant, then the name or type of the machine; then the engine (in brackets), and lastly the name of the pilot :—

G-EBGE, Herbert J. Thomas; Bristol Lucifer School biplane (Bristol Lucifer); C. T. Holmes.

G-EBGG, Sir Henry White-Smith, C.B.E., Bristol Bloodhound (Bristol Jupiter); T. W. Campbell.

G-EBKQ, A. V. Roe and Co.; 504 N biplane (Armstrong-Siddeley Lynx); Bert Hinkler.

G-EBJU, H. O. Short; Short Cantilever Monoplane (Bristol Cherub); J. Lankester Parker.

G-EBHZ, the Lord Edward Grosvenor; D.H.53 biplane (A.B.C. Scorpion); Flg. Off. G. E. F. Boyes or Flt. Lt. A. P. Ritchie or Flt. Lt. A. L. A. Perry Keene.

G-EANW, R. L. Preston; B.E.2e biplane (90 h.p. R.A.F.); R. L. Preston.

G-EADB, J. R. King; Sopwith Gnu biplane (110 h.p. Le Rhône); J. R. King.

G-EAPF, Flt. Lt. F. O. Soden; Austin Whippet biplane (45 h.p. Anzani); Flt. Lt. F. O. Soden.

G-EBMB, T. O. M. Sopwith, C.B.E., and F. Sigrist; Hawker biplane (Anzani); Flt. Lt. P. W. S. Bulman, M.C., A.F.C.

G-EBDK, Leslie Hamilton; Martinsyde F.6 biplane (Wolseley Viper), Leslie Hamilton.

G-EBHS, R.A.E. Aero Club, Farnborough; R.A.E. Aero Club monoplane (Bristol Cherub); Flt. Lt. J. S. Chick.

G-EBJM, Sir G. Stanley White, Bart; Bristol Brownie monoplane (Bristol Cherub); C. F. Uwins.

G-EBJJ, Lord Invernairn; Beardmore Wee Bee I monoplane (Bristol Cherub); A. N. Kingwill.

G-EBHX, Wing Cdr. W. Sholto Douglas, M.C., D.F.C.; D.H.53 monoplane (Blackburne Badger I); Wing Cdr. W. Sholto Douglas, M.C., D.F.C.

G-EACZ, Cecil Clayton; Sopwith Scooter monoplane (Clerget); J. P. C. Phillips.

Cranwell Light Aeroplane Club; C.L.A.3, parasol monoplane (Bristol Cherub); Flt. Lt. N. Comper.

G-EBHK, Captain Charles B. Wilson, M.C.; Avro-type Airdisco biplane (120 h.p. Airdisco); B. Youell.

G-EBIL, Major J. C. Savage; A.N.E.C. light monoplane (Anzani); J. H. James.

G-EBKM, George Parnall; Parnall Pixie II monoplane (Blackburne); Frank T. Courtney.

G-EBKK, George Parnall; Parnall Pixie III monoplane (Bristol Cherub); Sq. Ldr. R. A. de H. Haig.

G-EBKU, Capt. G. de Havilland; D.H.60 Moth biplane (27/60 h.p. Cirrus); Capt. H. S. Broad.

G-EBKT, Sir Charles C. Wakefield, Bart.; D.H.60 Moth biplane (27/60 h.p. Cirrus); Alan J. Cobham.

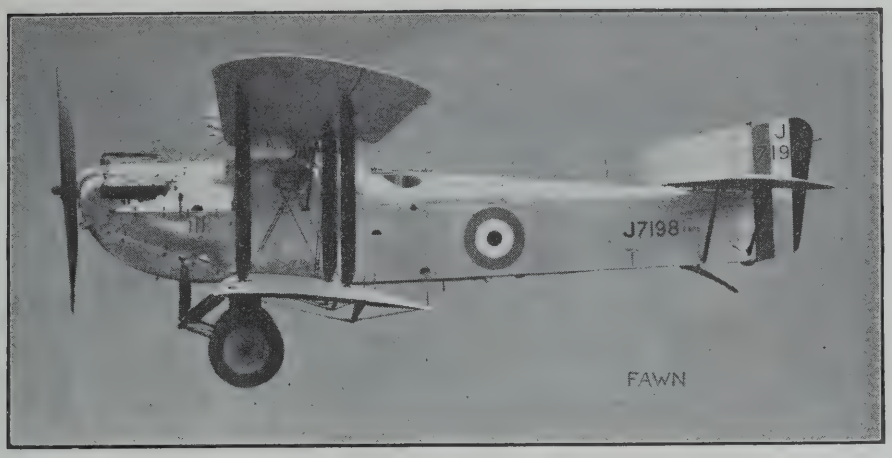
H-NACN, Pander Aeroplane Works; Pander Type D monoplane (Anzani); Col. The Master of Sempill.





MORE COMPETITORS.—From left to right, Dr. Whiteh Reid, Mr. Hu Broad, and Mr. T. Campbell.

R·A·F· TYPES — No 2.



THE FAIREY FAWN

(Napier Lion Engine.)

The FAWN is a three-seat Army Reconnaissance machine which can be converted into a Day Bomber at a few moments notice.

In common with most FAIREY AIRCRAFT this machine is fitted with the FAIREY PATENT VARIABLE WING CAMBER GEAR.

Considerable quantities of these machines are in service with the ROYAL AIR FORCE: it will be recollected that it was FAIREY FAWNS which gave the remarkable display of formation flying at this year's R.A.F. DISPLAY.

FAIREY AIRCRAFT

THE FAIREY AVIATION COMPANY, LTD.

HAYES, MIDDLESEX. HAMBLE, Nr. SOUTHAMPTON.

THE AEROPLANES AT LYMPNE.

(Alphabetically Arranged in Order of Names of Machines.)

THE A.N.E.C.

This machine, entered by Major Savage and to be flown by Mr. James, is the single-seat light aeroplane belonging to the Surrey Light Aeroplane Club which did so well at Lympne in 1923, with certain important modifications. The chief of these are the fitting of new wings of a reduced span, and the fitting of an 1,100 c.c. Anzani Vee twin engine in place of the original 698 c.c. Blackburne. At Lympne with the original wings this machine showed a very remarkable performance. With the cut-down wings and the more powerful engine it should prove to be extremely fast. The following data alone are at present available :—

SPECIFICATION.

Span ... 18 ft. 4 in. (5.58 m.)	Weight loaded 530 lbs. (240 kg.)
Length 15 ft. 7 in. (4.75 m.)	



A FAST MACHINE.—The A.N.E.C. which will be flown by Mr. J. H. James. It is somewhat similar to the 1923 machine, but, with a bigger engine and small wings, it is much faster.

THE AUSTIN WHIPPET.

The Austin Whippet, entered by F/L. Soden, who has been using it for runabout purposes for some years, was designed and built by Austin Motors, Ltd., as long ago as 1920, and therefore represents one of the very earliest attempts in any country to produce an economical touring machine for the private owner.

The Whippet is a small single-bay folding wing biplane, with rigid strut bracing, fitted with a six-cylinder 50 h.p. Anzani engine.

The machine has a steel tube fuselage, steel interplane and bracing struts, and a steel undercarriage, with wooden wing spars and ribs. It is a single seater, with the pilot below the trailing edge of the centre section.

Though by no means properly a "light aeroplane" in the ordinary sense, the Whippet is definitely a simple and easily maintained low-powered single seater, with a performance adequate for serious flying, and has proved to be extremely reliable and to require the minimum of attention and upkeep.

SPECIFICATION.

Span ... 21 ft. 6 in. (6.55 m.)	Wing loading 5.66 lbs./sq. ft. (26 kg./m².)
Length 16 ft. (5.15 m.)	
Wing area 150 sq. ft. (14 m².)	Power loading 16.2 lbs./h.p. (7.3 kg./h.p.)
Weight empty 580 lbs. (263 kg.)	Speed range ... 35-85 m.p.h. (57-137 km./h.)
Weight loaded 810 lbs. (368 kg.)	Climb to 5,000 ft. (1,525 m.) 10 mins.
Engine Anzani 50 h.p.	



The first real and practical Light Aeroplane, the Austin Whippet which was designed by Mr. Kenworthy (now of the Aircraft Disposal Co. Ltd.) in 1919. Flt. Lt. F. O. Soden, who will fly it, is seen on the left. He is the parachute specialist of the R.A.F.

A. V. ROE AND CO., LTD.

The Avro firm will be represented at Lympne by the Avro Lynx or 504N, which will be entered for the International Handicap, and by the Avro light aeroplane, which will compete in the Grosvenor Challenge Cup—which this machine won last year—and in the Light Aeroplane Handicap.

THE AVRO LYNX.

This machine, which also entered in the King's Cup Race and ran in the Croydon Stakes, is an improved and modified version of the well-known 504 type, fitted with the Armstrong-Siddeley Lynx engine.

The differences between the 504N—as the Avro Lynx is styled—and the original 504K include the use on the newer type of a very robust undercarriage, which combines an oleo damping gear with compression rubber springing, the fitting of a lever operated tail gear, the fitting of one large centre section fuel tank, a gravity fuel supply and the cutting down of both leading and trailing edges of the centre section to improve the view upwards from both seats, and a tapering of the chord of all ailerons towards the wing tips, which has been found greatly to lighten the aileron control and to bring it more into harmony with the other controls.

The mounting of the Lynx engine deserves mention, and is well shown in a photograph. The engine itself is carried on a circular steel ring, which is carried from the four corners of the fuselage by a triangulated system of steel tubes. A fireproof bulkhead is supported on these tubes well ahead of the wooden framework of the fuselage.

SPECIFICATION.

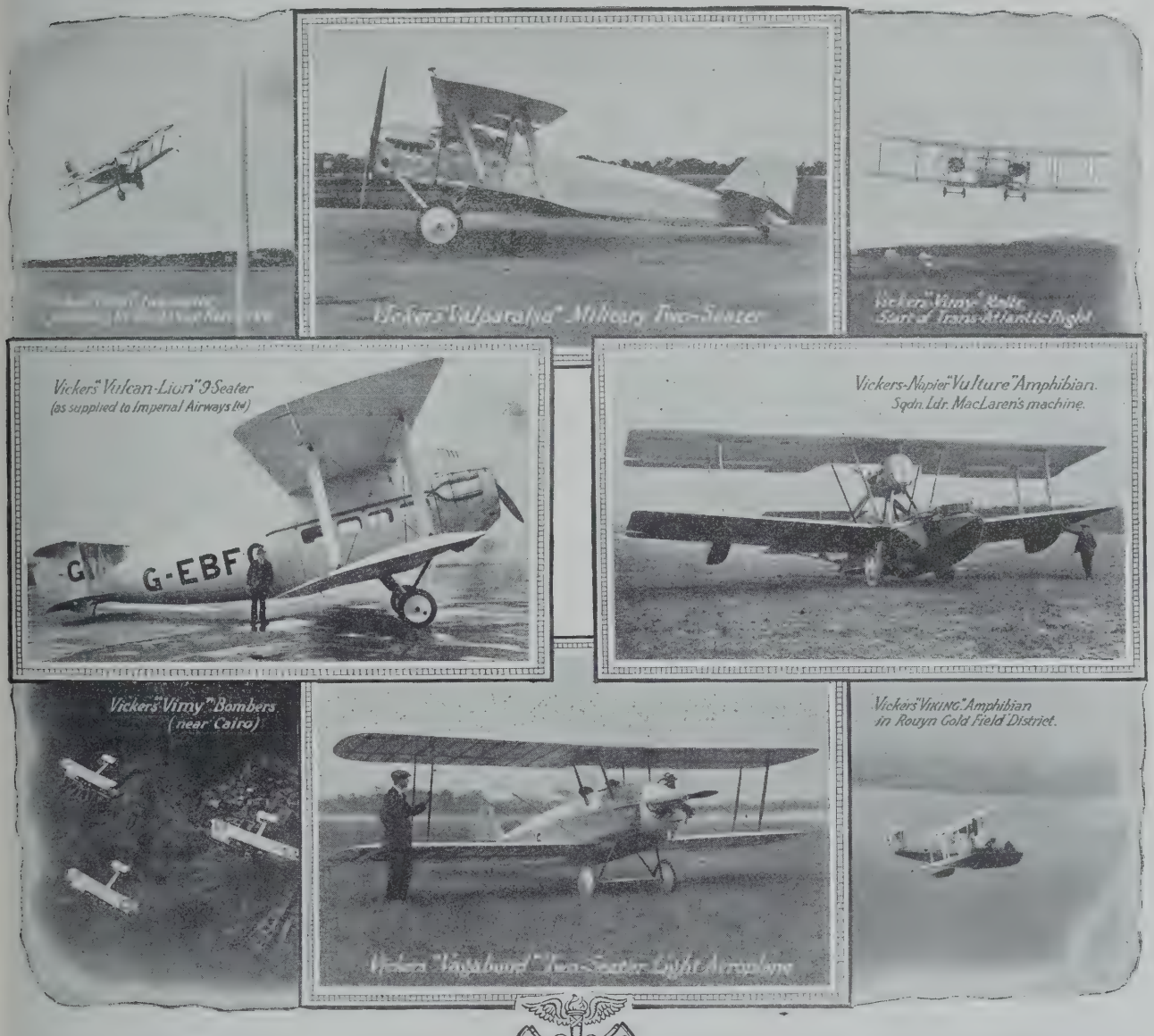
Span 36 ft. (10.97 m.)	Engine Armstrong-Siddeley Lynx
Length 28 ft. (8.53 m.)	
Height 10 ft. 9 in. (3.28 m.)	Wing loading 6.43 lbs./sq. ft.
Wing area 320 sq. ft. (29.7 m².)	Power loading 11.42 lbs./h.p.
Weight empty 1,452 lbs. (659 kg.)	Max. speed 95 m.p.h.
Weight loaded 2,056 lbs. (932 kg.)	Landing speed 40 m.p.h.
	Climb to 5,000 ft. (1,525 m.) 7 mins.

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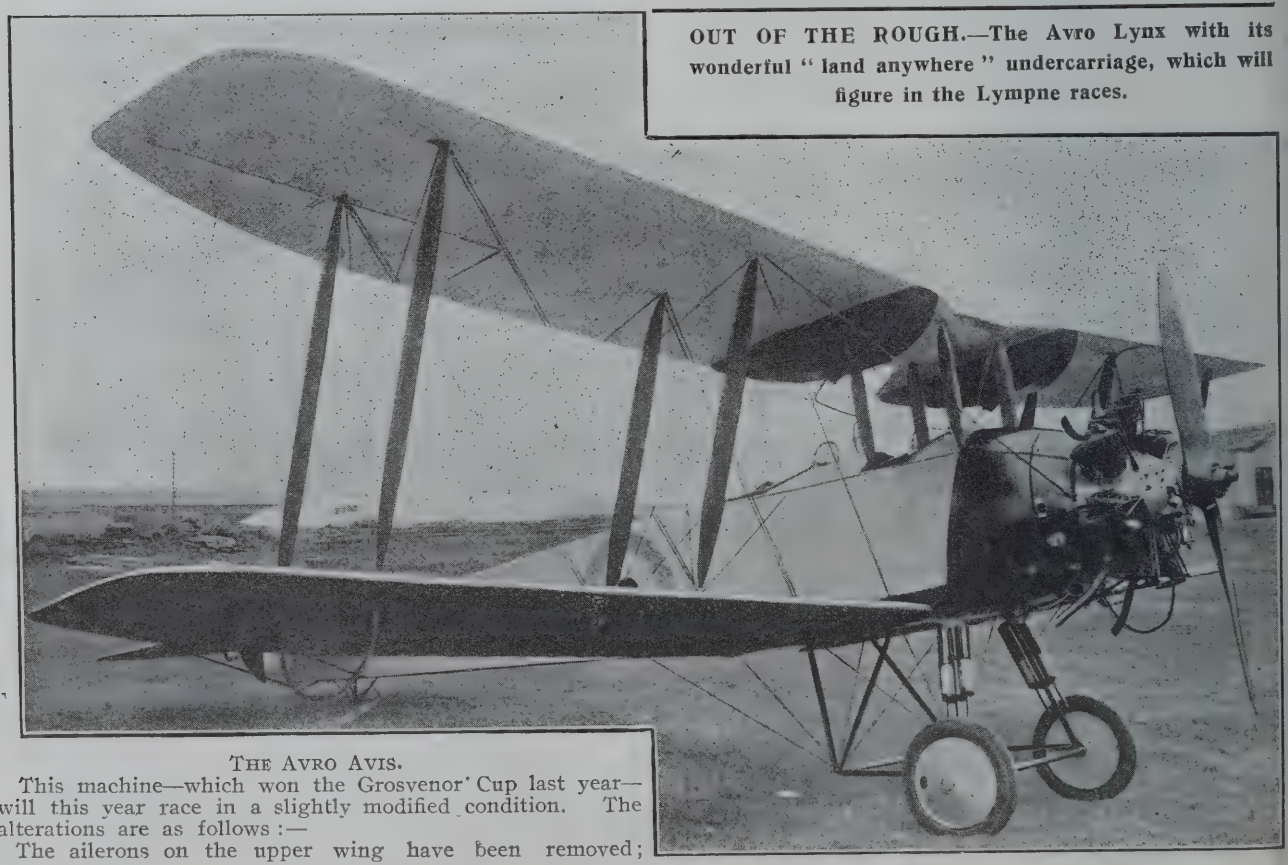


The Avro Airdisco which is being flown by Mr. "Jimmy" Youell.



FOLDING WINGS.—The Avro Avis (Bristol Cherub) which last year won the Grosvenor Cup. It will be flown again this year by Mr. Bert Hinkler.

OUT OF THE ROUGH.—The Avro Lynx with its wonderful "land anywhere" undercarriage, which will figure in the Lympne races.



THE AVRO AVIS.

This machine—which won the Grosvenor Cup last year—will this year race in a slightly modified condition. The alterations are as follows:—

The ailerons on the upper wing have been removed;



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those on the lower wing alone remaining in service. This has been found appreciably to lighten the controls, and in addition allows the removal of a strut which had interconnected the upper and lower ailerons.

Further, as the machine has a very low landing speed, the gear, which was fitted to operate the ailerons as flaps, has been removed—thus saving some weight. The machine being thus both lighter and cleaner should show a distinctly improved performance.

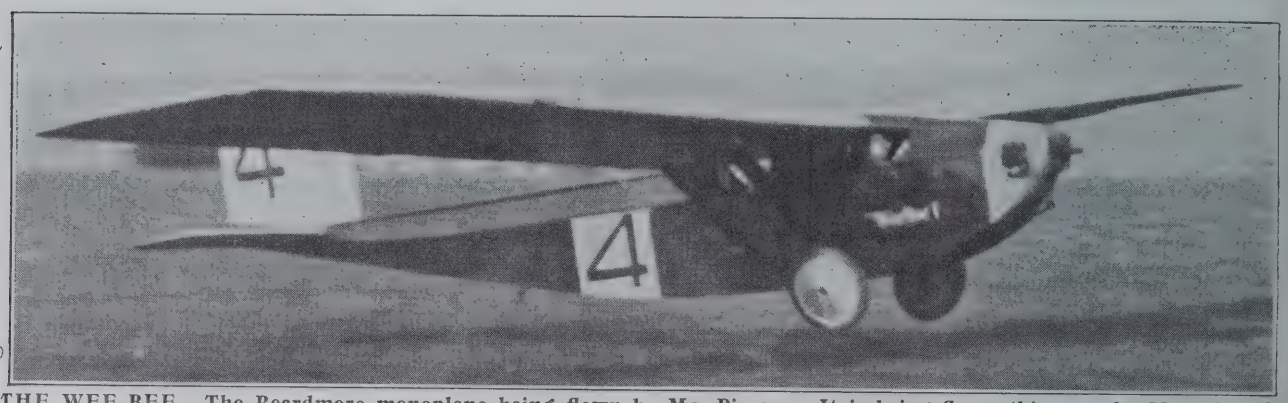
The Avis is a normal tractor biplane with equal wings of the single bay type, seating two in tandem and equipped with a Bristol Cherub engine. The structure throughout is of wood, except for the undercarriage, which is of steel tube, and incorporates an oleo and rubber shock absorber.

SPECIFICATION.

Span 30 ft. (9.15 m.)	Weight loaded 950 lbs. (432 kg.)
Length 24 ft. (7.22 m.)	
Width folded ... 9 ft. (2.74 m.)	Wing loading
Wing area 255 sq. ft. (23.7 m²)	3.72 lbs./sq. ft. (18 kg./m².)
Weight empty 580 lbs. (263 kg.)	Speed range ... 30-75 m.p.h. (48-120 km./h.)

THE AVRO AIRDISCO.

This machine, which is entered by Capt. C. B. Wilson, for the International Handicap, is a 504 type Avro fitted with the 120/140 h.p. Airdisco engine. The same machine entered for the King's Cup Race, and took part in the consolation race for machine which were forced out of the King's Cup.



THE WEE BEE.—The Beardmore monoplane being flown by Mr. Piercey. It is being flown this year by Mr. Kingwill. In this particular picture it is actually making its last flight at Lympne last year which won for it the competition. Since then it has been breaking height records at Renfrew.

THE BEARDMORE WEE BEE.

The Beardmore Wee Bee, designed and produced for the Air Ministry two-seater light aeroplane contest of 1924, proved its quality by winning that competition by an appreciable margin over all the other competitors.

It is a thick, high wing monoplane, with pilot's and passengers' seats below the wing—which latter is supported at the centre by a nearly triangular section coaming built on top of the main fuselage structure.

The fuselage is built on six longerons, four of them at the corners of a rectangle, the other two at the top of the coaming, which supports the wing. This framing is covered with three-ply, except at the two cockpits, when the covering is cut down to the upper pair of the four first mentioned longerons.

Although this coaming therefore projects in front of both occupants, and is enclosed by the wing so that it is impossible to see over it, it is nevertheless so narrow at the top that both the crew can see straight ahead on either side thereof, and the view obtained is actually surprisingly good.

The wings are divided in the centre line, and are supported at the centre of the fuselage and by one pair per side of diagonal steel tube struts running from the bottom of the body to about one-third of the half span out from the body. The wings are built on spruce and three-ply box spars, united by girder ribs, also of spruce and plywood. The whole assembly is covered top and bottom by thin three-ply from the rear spar to the leading edge. This covering serves as a drag bracing and in addition gives the wing an abnormal torsional stiffness. Ailerons of very narrow chord, and of considerable length are carried from a false spar half-way between the main rear spar and the trailing edge.

The tail unit consists of a fixed tail plane of very small chord, followed by a large undivided elevator and surmounted by a pin and rudder.

The undercarriage consists of a nickel-chrome axle, carrying a pair of pneumatic tyred wheels. This axle is anchored inside the body, and projects considerably past the side thereof. The only springing employed is that of the tyres and of the axle tube.

The engine—a Bristol Cherub—is mounted ahead of a fireproof bulkhead upon an upper pyramidal support of duralumin plate, and upon two lower pillars of the same alloy. Four nuts and the petrol and control connections alone have to be undone to remove the engine. Petrol is gravity fed to the carburettor from a tank in the wings, and the engine contains its own oil supply.

As may be seen from the specification, the all-round performance of the Wee Bee is astonishingly good. The figures given relate to the machine carrying two-seater load, and as a single seater with the after cockpit closed considerably higher speeds may be expected.

SPECIFICATION.

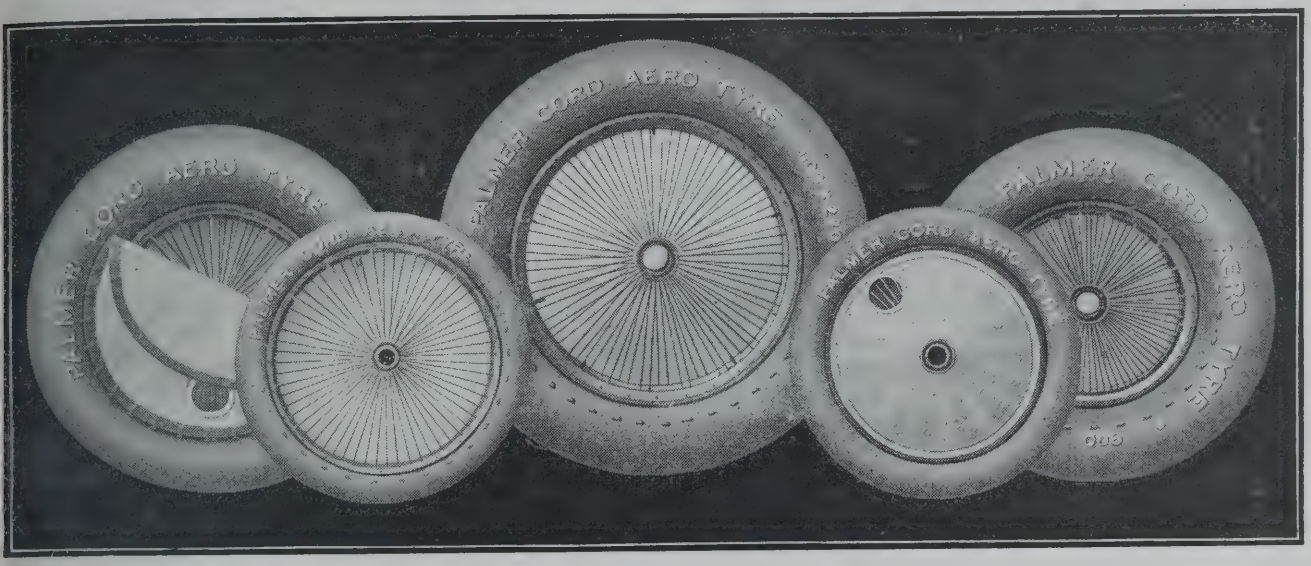
Span 38 ft. (11.58 m.)	Wing loading
Length ... 22 ft. 2 in. (6.76 m.)	4.47 lbs./sq. ft. (21.8 kg./m².)
Wing area 187 sq. ft. (17.4 m².)	
Weight empty 462 lbs. (209 kg.)	Speed range ... 36-86 m.p.h. (58-138 km./h.)
Weight loaded 837 lbs. (380 kg.)	Ceiling ... 21,000 ft. (6,400 m.)



OUR WELL-KNOWN PILOTS.—From left to right, Flt. Lt. P. W. S. Bulman of the Hawker, Mr. Cyril Holmes and Mr. C. F. Uwins both of Bristol fame and Mr. Bert Hinkler of the Avro.

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		m/m	m/m	m/m			m/m	m/m	m/m			m/m	m/m	m/m
375×55	168	111.12	25.4	Central	700×100	99	178.	38.89	132/46	1000×150	201	185.	60.32	125/60
300×60	16	111.12	25.4	Central	,,	112	150.	38.09	Central	,,	210	185.	60.32	Central
,,	17	72.39	12.7	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	,,	147	178.	55.	Central	,,	149	185.	55.	Central
,,	138	130.	38.09	Central	750×125	77	178.	44.45	132/46	,,	155	220.	66.67	Central
575×60	21	160.	28.	Central	,,	92	185.	55.	135/50	,,	166	185.	55.	125/60
,,	34	150.	31.75	104/46	,,	95	185.	55.	Central	900×200	107	185.	55.	Central
,,	111	150.	38.09	104/46	,,	96	178.	55.	132/46	,,	108	185.	55.	125/60
600×75	21	160.	28.	Central	,,	99	178.	38.89	132/46	,,	128	220.	66.67	Central
,,	34	150.	31.75	104/46	,,	112	150.	38.09	Central	,,	137	250.	80.	Central
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50	,,	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	,,	85	185.	55.	Central	1100×220	134	220.	66.67	Central
,,	79	178.	44.45	Central	,,	161*	185.	55.	135/50	,,	136	250.	80.	Central
,,	100	178.	38.09	132/46	,,	163*	185.	66.67	135/50	1250×250	133	250.	80.	Central
,,	101	178.	31.75	132/46	,,	169†	185.	55.	135/50	,,	154	304.8	101.6	Central
700×100	77	178.	44.45	132/46	1000×150	211*	185.	60.32	135/50	1500×300	115	304.8	101.6	Central
,,	92	185.	55.	135/50	,,	131	220.	66.67	Central	,,	126	304.8	152.4	Central
,,	95	185.	55.	Central	,,	150	185.	55.	Central	1750×300	139	400.	152.4	Central
,,	96	178.	55.	132/46	,,	167	185.	55.	125/60					
						174	250.	80.	Central					

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THE B.E.2e.

The B.E.2e, entered by Mr. Preston, has the distinction of being the oldest type of machine that is entered at Lympne—in fact it must be one of the oldest types of aircraft which is still in a condition to fly at all. One has no information as to the age of this particular machine, for B.E.s of various types were built in considerable quantities during the war, long after the type had become obsolete as a fighting craft. As a design the 2e dates from late 1914, and was, of course, one of the products of Farnborough's "best brains." It is a near relative of the better-known B.E.2c from which it differs mainly in having but a single row of struts on each side, and a very considerable overhang of the top plane. The engine is the 90 h.p. R.A.F.

As this type of machine was not produced until the beginning of war, and as it had ceased to be of any practical importance by the end thereof, no detailed specification of it appears to have been published, and it has not yet been possible to acquire any accurate figures concerning it.

SHOULD OLD ACQUAINTANCE BE FORGOT?—The B.E.2e entered by Mr. R. L. Preston. This machine will be the joy of all old pilots and no doubt Mr. Preston will be beseiged by a queue of past and present pilots all anxious not to forget their old acquaintance, the B.E.2e.



THE BRISTOL AEROPLANE CO. LTD.

The Bristol Co. will be thoroughly well represented at Lympne this year. The Bristol Bloodhound, entered by Sir Henry White-Smith, the Bristol Lucifer School machine, entered by Mr. Herbert Thomas, and the Bristol Brownie, entered by Sir G. Stanley White, will all take part in the International Handicap. In addition the Brownie will be entered for the Grosvenor Cup Race for the Light Aeroplane Holiday Handicap, and be submitted to tests for Certificated Performances.

It is a noteworthy fact that these three machines, covering the range from the 400 h.p. high-performance military machine down to the 30 h.p. light aeroplane, are produced completely—even to the engine—by the Bristol Company. So far as is known there is no other firm in the world whose range of standard products covers quite so wide a field—certainly not without calling upon an external source of supply for engines, at least.

The Bristol Bloodhound.

The Bristol Bloodhound will be identical with that entered for the King's Cup Race. This type of machine was designed as a two-seat fighter and reconnaissance type for the Air Ministry, and is of all-metal—mostly steel—construction. During the war the Bristol Co. (then the British and Colonial Aeroplane Co.), produced the first British all-metal aeroplane, that could in any way be regarded as a practical flying machine, so that the firm may properly be regarded as among the earliest pioneers of metal construction in this country.

The Bloodhound is a biplane with approximately equal top and bottom wings, a considerable stagger, a noticeable sweepback, and a marked dihedral on the lower wings only.

The undercarriage is of notably wide track, and is attached to the lower wings beneath an inner pair of interplane struts which are set fairly close into the body. This undercarriage has a combined spring and oleo shock-absorber, and the axles are bent upwards and hinged to the bottom of the fuselage.

The ailerons, fitted to both top and bottom wings, are balanced on the Bristol "Frize" system of inset hinges. Elevators and rudders are balanced by the horn method.

The engine is the Bristol Jupiter Mark IV, rated at 425 b.h.p. at 1,650 r.p.m.

As a Service type the Bloodhound is arranged to carry complete dual control, twin synchronised Vickers guns firing forward, and Scarff-ring mounting on the after cockpit, with 1,600 rounds for the Vickers, and seven double trays for the Lewis guns. Bomb-gears, electric lighting and heating, oxygen apparatus, R.L. tube, and wireless. The fuel capacity is 104 gallons—approximately four hours' cruising supply. With this full load the machine weighs about 4,250 lbs., and has a top speed of about 126 m.p.h. at 2,000 ft.

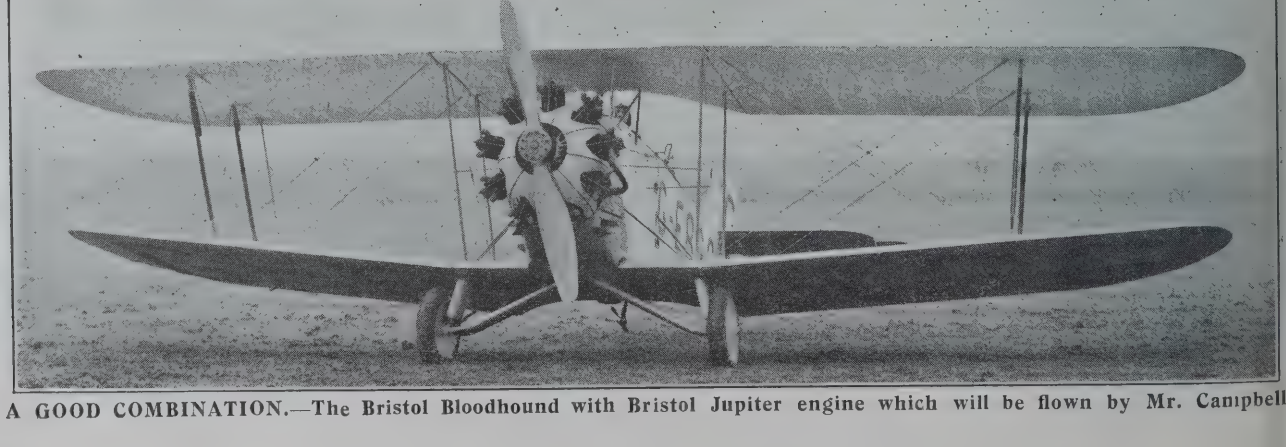
Obviously, the weight in racing trim will be very notably reduced, and a corresponding increase in performance obtained.

The Bloodhound has a span of 40 ft. 4 ins. (12.3 m.), is 26 ft. 6 in. (8.08 m.) long, and 10 ft. 8 in. (3.26 m.) high.

The Bristol Lucifer School Machine.

The Bristol Lucifer School machine is a simple and sturdily-designed dual-control biplane, which has been in continued service at the Bristol School, where a large number of officers of the R.A.F. Reserve pass through their flying training. Six of these machines have been at work there for the past two years, during which period there has been no forced landing from engine trouble, or any mishap to the machines. The cost of running and of upkeep has been found to be extremely small.

The machine itself is an equal-winged biplane, with single-bay bracing, and a fairly heavy stagger. Two seats in tandem are arranged behind the upper rear spar, and are fitted



A GOOD COMBINATION.—The Bristol Bloodhound with Bristol Jupiter engine which will be flown by Mr. Campbell.

A

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THE BRISTOL BROWNIE.—An excellent Barnwell-cum-Fedden product which will be flown by Mr. Uwins.

with complete dual control, and with telephonic intercommunication.

The upper and lower wings are identical and interchangeable, entirely built of wood. The centre section and interplane struts are rigid Ns of steel tube, an arrangement which reduces the process of truing up to the adjustment of the flying and landing wires.

An undercarriage of the V type, with telescopic rear legs to each of the Vs, is fitted. The shock-absorbing gear is of the combined spring and oleo type, giving a very long travel and materially reducing the stresses imposed on the machine by rough landings.

The engine is a three-cylinder Lucifer, Series III, of 100 h.p. The Lucifer engine is of a very simple design which has proved to be extremely reliable and economical in operation. The average consumption at cruising speed has been found to be 22 litres (under five gallons), of fuel and 2.2 litres (four pints) of oil per hour.

The petrol tank is fitted in the scuttle ahead of the pilot, and feeds the carburettors by gravity. A steel and asbestos fireproof bulkhead behind the engine and the carburettor intakes are taken out through the bottom of the cowling.

The machine is light and easy to fly, extremely manœuvrable, and capable of all kinds of aerobatics. That it is adequately strong for all purposes, is indicated by the fact that it is certified as airworthy for a total weight 440 lbs. (200 kg.) in excess of its normal fully-loaded weight.

The Bristol Brownie.

The Brownie will be remembered for its excellent performance at the Lympne meeting last year, where it secured first place in the competition for the Duke of Sutherland's £500



A TRAINING MACHINE.—The Bristol school machine (100 h.p. Lucifer) which will be flown by Mr. Cyril Holmes.

prize for taking off and landing, the Air Ministry's second prize of £1,000 in the main competition, and the third place in the Grosvenor Cup Handicap.

The Brownie is a low-wing cantilever monoplane of all metal construction. Pilot and passenger are seated in tandem, one ahead of the front spar and one behind the rear spar. These cockpits are equipped with complete dual control.

The wings are of distinctly thick section at the roots, and taper very noticeably in thickness, but relatively little in chord. They are set at a very marked dihedral angle, and are fitted with ailerons, which taper from a very small chord at their inner ends to a maximum chord close up to the tips.

The undercarriage consists of a steel tube axle, which very considerably overhangs two vertical struts, which support it from each side of the fuselage. These two supports are braced forwards and backwards by wire bracing. Landing shocks are taken on the tyres and on the spring of the axle.

For transport and stowage the wings are rapidly removable, and on unfastening the front spar connection they may be rotated and folded round the rear spar joint so as to lie alongside the fuselage.

The engine is the two cylinder 1096 c.c. Bristol Cherub, which is mounted on steel pillars projecting ahead of a proper fire-proof bulkhead. Of the reliability of the Cherub it should suffice to recall that every first award, and 6 out of 7 of all the prizes at last year's meeting were gained by machines fitted with the Bristol Cherub.

The speed range of the Brownie is from 36 to 70 m.p.h. (58 to 113 km.h.), with an economical cruising speed of 58 m.p.h. (94 km.h.). At this speed the fuel consumption is 1.9 galls. (8.6 l.) and the oil consumption 1.2 pints (.68 l.) per hour.

In the official low speed tests last year the Brownie was flown over the course at 38.7 m.p.h. (62 km.h.), at which speed it was entirely controllable. Properly handled the Brownie will take off in 130 yards, and pull up in about 50 yards, so that a very restricted field will serve as an aerodrome.

The Brownie is easy and pleasant to fly, economical in running, and a simple and robust construction. The fact that it is of metal construction renders it particularly free from liability to deformation as the result of atmospheric temperature changes.

SPECIFICATION OF THE LUCIFER SCHOOL MACHINE.

Span 31 ft. 2 in. (9.5 m.)	Wing loading 5.82 lbs./sq. ft (29.8 kg./m².)
Length ... 24 ft. 3 in. (7.4 m.)	
Height 8 ft. 6 in. (2.6 m.)	
Wing area 285 sq. ft. (26.5 m².)	Power loading 16.6 lbs. (7.9 kg.) per h.p.
Weight empty 1,180 lbs. (563 kg.)	Max. speed 89 m.p.h (143 km./h.)
Weight loaded 1,660 lbs. (790 kg.)	Climb to 1,000 ft. (305 m.) 2 mi. 50 secs.
Engine Lucifer III 100 h.p.	Range at full power 5 hours.

SPECIFICATION OF THE BRISTOL BROWNIE.

Span 36 ft. 7 in. (11.5 m.)	Weight empty 500 lbs. (227 kg.)
Length 26 ft. 3 in. (8.0 m.)	Weight loaded 870 lbs. (395 kg.)
Span folded 7 ft. 4 in. (2.23 m.)	Wing loading 4.2 lbs./sq. ft. (20.8 kg./m².)
Wing area 204 sq. ft. (19 m².)	

THE CRANWELL LIGHT AEROPLANE CLUB.

A new machine designed and built by an Association of officers and men of the Boys' Wing at Cranwell R.A.F. Station.

This machine is a parasol monoplane with V strut bracing to the wings, and a very well streamlined fuselage. The engine is a Bristol Cherub.

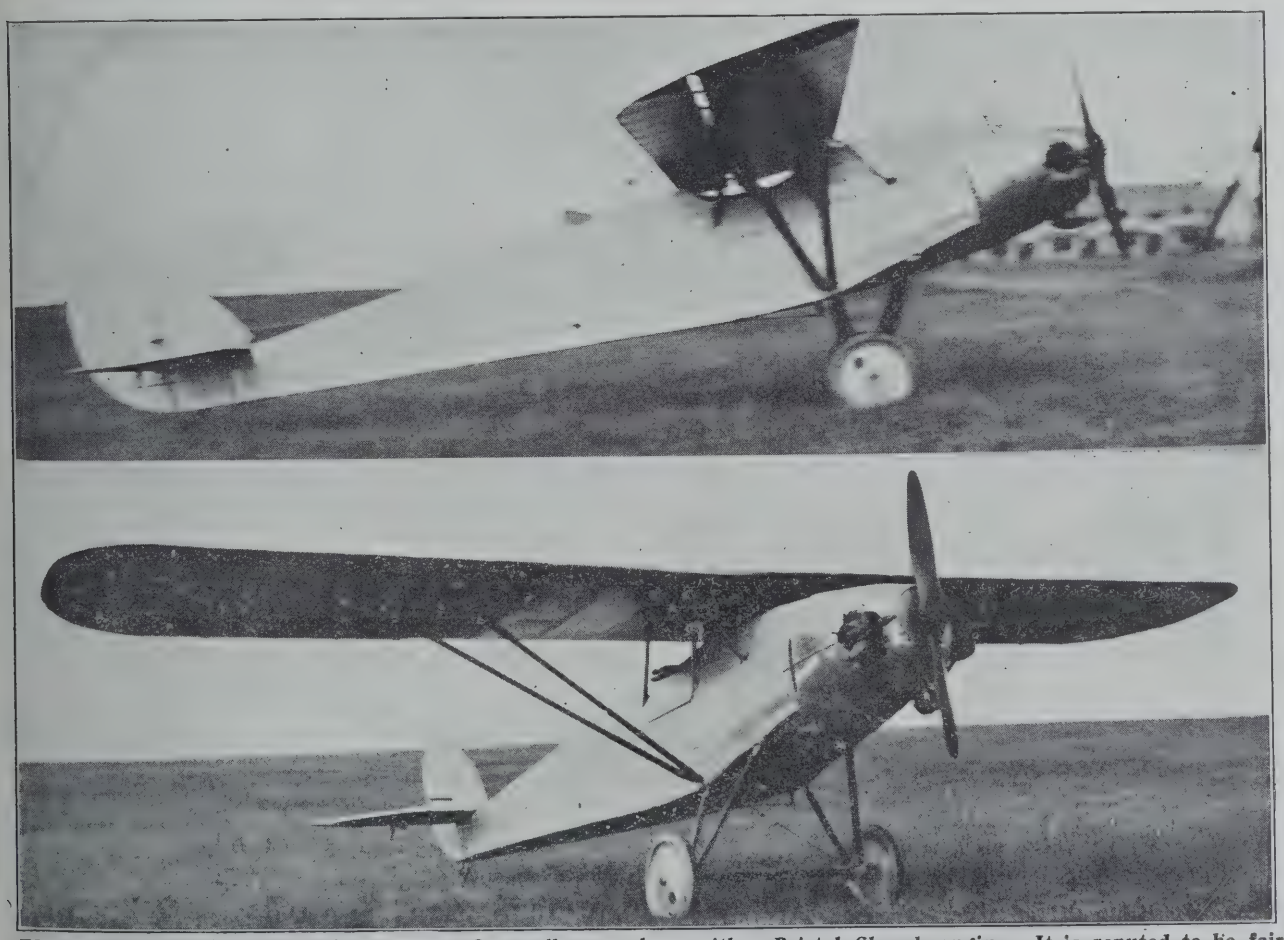
The machine is of the timber-framed type, with a rigidly triangulated fuselage structure comprising four longerons and struts, covered with a light fairing bringing the forward portion to an oval section.

The wings are of normal construction, of a distinctly thick section, parallel in chord and thickness, except for a rounding off at the tips. They are supported by the already-mentioned V struts on each side of the body, and by four vertical centre-section struts. The pilot's seat is below the centre-section, under the rear spar.

Altogether the C.L.A.C. III, as the machine is called, is a very pretty job, and should be distinctly fast.

SPECIFICATION.

Span 21 ft. (6.4 m.)	Weight empty 325 lbs. (147 kg.)
Length 18 ft. 6½ in. (5.65 m.)	Weight loaded 530 lbs. (240 kg.)
Height 5 ft. 9 in. (1.75 m.)	Engine Bristol Cherub.
Wing area 70 sq. ft. (6.5 m².)	Wing loading...7.6 lbs./sq. ft. (37 kg./m².)



THE ONLY NEW MACHINE.—The new Cranwell monoplane with a Bristol Cherub engine. It is reputed to be fairly fast.

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MARTINSYDE (Jaguar)	130 h.p. CLERGET
PARNALL PANTHER	200 h.p. B.R.2
BRISTOL FIGHTER	210 h.p. "VIPER"
D.H.9	240 h.p. "PUMA"
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D.H.9 SEAPLANE	360 h.p. "EAGLE VIII."

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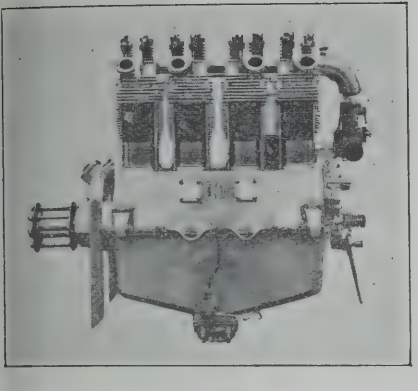
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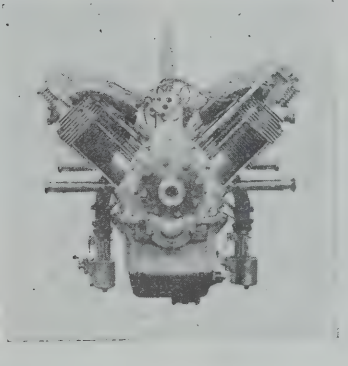


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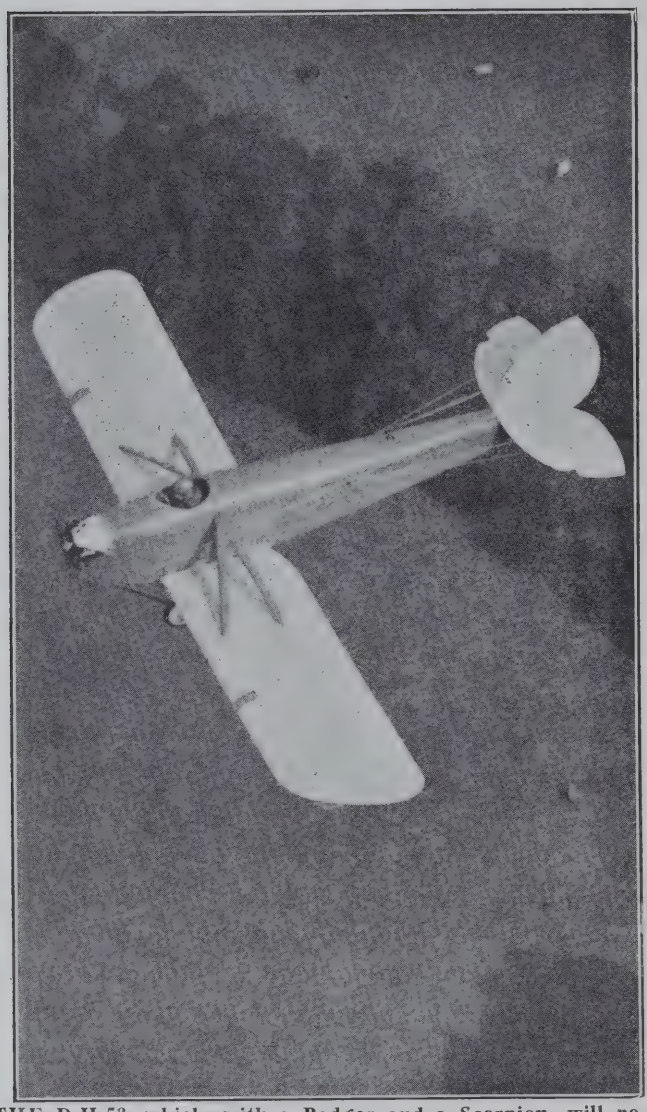
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THE DE HAVILLAND MACHINES.

De Havilland aircraft will be very considerably in evidence at Lympne this year, although the decision by the Light Aeroplane Clubs not to enter their Moths for the events which are open to this type will naturally make Lympne a good deal less of a Moth meeting than at first seemed probable. This is regrettable, but when it is recollected that the clubs have only just secured delivery of their machines, and naturally want to use them for their own purposes, and that short of going to Devon or Cornwall the Aero Club could scarcely have found a meeting place further removed from the club centre it is not particularly surprising.

However, Capt. de Havilland will enter one, and possibly two, Moths for the International Handicap, and for the Grosvenor Cup Race.

In addition Capt. de Havilland and Wing Commander Sholto Douglas are entering a D.H.53 for the International Handicap, the Grosvenor Cup Race, the Light Aeroplane Holiday Handicap, and the Single-seater Light Aeroplane Scratch Race.



THE D.H.53, which, with a Badger and a Scorpion, will be flown by Wing Cdr. Sholto Douglas and Flg. Off. Boyes.

The D.H. 53.

Originally produced for the 1923 Lympne Light Aeroplane Meeting, when it impressed everybody by its remarkable all-round performance, the D.H.53 has since been ordered in some number by both the R.A.F. and the R.A.A.F. In both services it has been found to be a thoroughly robust serviceable machine, which can be used to provide flying practice at the minimum of expense.

The D.H.53 is a single-seater low-wing monoplane, with rigid strut bracing from the fuselage to the front and rear spars. It is of normal timber construction throughout, with the standard D.H. type of three-ply covered fuselage, undercarriage with a telescopic rear leg in each Vee, and D.H. differential aileron control.

The engine originally fitted at Lympne was a Douglas, with a chain reduction gear to the airscrew. This was later changed to a Blackburne 697 c.c. Vee twin-run inverted, which is still in use in the firm's own machine. The Service D.H.53's have been fitted with the Blackburne "Tom Tit."

A second D.H.53, fitted with an A.B.C. Scorpion engine of 1,100 c.c. has been entered by Lord Edward Grosvenor, and will be flown by Flg. Off. Boyes, Flt. Lt. Ritchie, and Flt. Lt. Perry Keene, in relays.

Specification.

Span 30 ft. 1 in. (9.15 m.)	Max. speed 73 m.p.h. (117 km./h.)
Length ... 19 ft. 8 in. (6.0 m.)	Landing speed 33 m.p.h. (53 km./h.)
Wing area 120 sq. ft. (11.1 m²)	Climb to 10,000 ft. (3,050 m.) 45 mins.
Weight empty 326 lbs. (148 kg.)	Fuel capacity 2 gals. (9.1 litres.)
Weight loaded 490 lbs. (222 kg.)	Range at 60 m.p.h. (96 km./h.) 150 miles (240 km.)
Wing loading ... 4 lbs./sq. ft. (20 kg./m²)	

The D.H.60 (Moth).

The Moth, which has been adopted as the standard equipment for light aeroplane clubs, is essentially an efficient and economical two-seater suitable for school and sporting purposes and particularly adapted for the needs of the private owner. It is not, properly speaking, a light aeroplane, but it is definitely a machine which serves the purposes which it is hoped that the light aeroplane may serve in time—when a satisfactory engine has been evolved for such machines.

The D.H.60 is a normal tractor biplane, of small dimensions, fitted with a 60 h.p. Airdisco Cirrus engine. The wings are of the single bay type, built of timber and arranged to hinge about the rear spar for convenience in housing and transport. The fuselage, of the spruce longeron and three-ply skin type, is of excellent shape and of quite a small cross-sectional area. It neverthless provides ample room and very complete protection for the two occupants, who are seated in tandem, one below and the other just behind the upper centre section. Complete dual control is fitted for training purposes, but the controls in the front cockpit can easily be removed if they are not required.



THE MOTH.—The De Havilland 60 (A.D.C. Cirrus) which is the accepted machine of Light Aeroplane Clubs and will be much in evidence at Lympne.

B T-H

1st, 2nd, and 3rd

Places

in the

King's Cup Race

were gained by machines using

B.T.H. Magnetos

And it is interesting to note a further proof of their reliability, in that all machines which completed the course were fitted with magnetos manufactured by

The British Thomson-Houston Co., Ltd.,

Electrical Engineers and Manufacturers,

Alma Street : : Coventry.

Works: Rugby, Birmingham, Willesden, Coventry and Chesterfield.

The tail unit is of conventional type, and comprises a fixed tail plane, divided rudders, a fair sized fin and a very adequate rudder. Ailerons fitted to the lower wing only are controlled through a D.H. differential gear.

The undercarriage is similar to that employed on all recent D.H. civil aircraft. It consists of an axle fixed to two hinged struts attached to the lower fuselage longerons below the engine mounting, and supported by two telescopic struts which run up nearly vertically from the axle to front-spar attachments of the lower wings. The springing is by rubber in compression.

The engine is carried directly on the top rails of the fuselage, is isolated from the front cockpit by an inclined fireproof bulkhead. A long exhaust pipe is fitted which effectively silences the exhaust, and as the engine is otherwise smooth and silent in operation the machine is extremely comfortable in this respect.

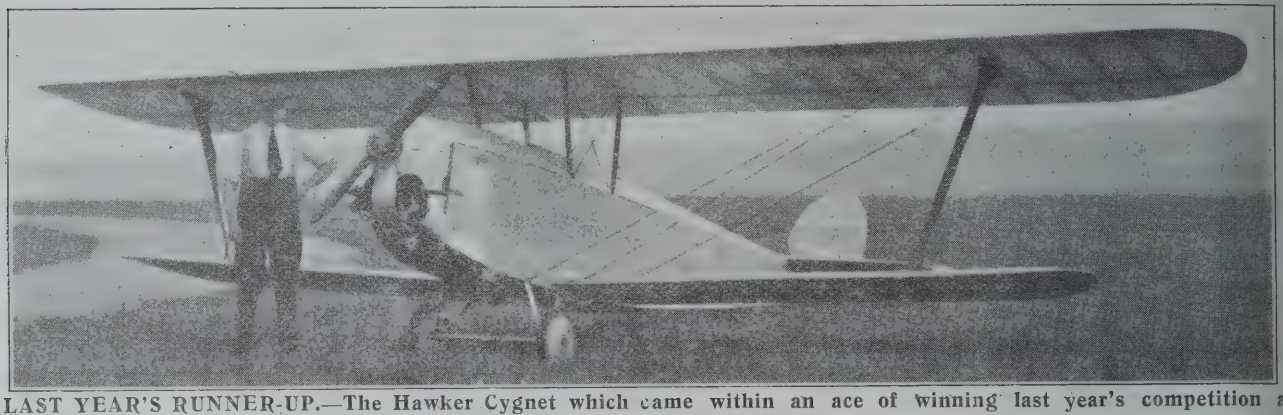
Fuel is carried in a tank built into the upper centre section giving an ample head for the feed to the carburettor. This tank is fitted with two petrol outlets, one which is normally in use at a higher level than the other. When the supply above this outlet is exhausted, the spluttering of the engine notifies the pilot that fuel is running low, but that by turning the petrol cock over to the other outlet he has still a 15 minutes' supply in hand.

A hand-starter working on the same principle as the kick-starter of a motor-cycle is fitted in the other cockpit, so that the pilot can start up from the seat.

The Moth has proved to possess a low landing speed, an excellent take-off, and a very fine initial climb. Its top speed is in the neighbourhood of 90 m.p.h.—in fact one of these machines recently averaged 86 m.p.h. over a 500-mile course—which is, all things considered, a really remarkable achievement.

SPECIFICATION.

Span	29 ft. (8.84 m.)	Engine	Cirrus (27.3 R.A.C.) 65 b.h.p. max.
Length	23 ft. 6 in. (7.17 m.)	Wing loading	5.5 lbs./sq. ft. (27 kg./m².)
Height	8 ft. 7 in. (2.60 m.)	Power loading	19.25 lbs./h.p. (8.75 kg./h.p.)
Width folded	9 ft. 8 in. (2.95 m.)	Max. speed	90 m.p.h. (145 km./h.)
Wing area	225 sq. ft. (21 m².)	Stalling speed	40 m.p.h. (65 km./h.)
Weight empty	765 lbs. (347 kg.)		
Weight loaded	1,250 lbs. (568 kg.)		



LAST YEAR'S RUNNER-UP.—The Hawker Cygnet which came within an ace of winning last year's competition at Lympne.

THE HAWKER ENGINEERING CO. LTD.

The Sopwith-Hawker Cygnets, designed and built for last year's two-seater light aeroplane competitions, are certainly among the most remarkable machines of the light aeroplane class yet constructed, and only a succession of engine misfortunes prevented these machines from carrying off very high honours indeed, at the meeting.

The Cygnets are small, single-bay, folding-wing, tractor biplanes, with I type interplane struts. The upper wing has a greater span and chord than has the lower wing, and there is a distinct dihedral on the lower wing alone. An ordinary rubber sprung V undercarriage is fitted, and the tail unit is of standard type, except that no fin is fitted, and that the rudder is very slightly balanced.

Ailerons are fitted along the whole span to both sets of wings.

The engine is carried ahead of a fireproof bulkhead, arrangements being made so that practically any suitable engine may be fitted without alteration to the main structure.

The Cygnet entered at this year's meeting will be fitted with an Anzani Vee twin engine of 1,100 c.c. It is understood that this type of engine has now successfully overcome those initial troubles which afflicted it last year.

SPECIFICATION.

Span	28 ft. (8.54 m.)	Wing area	165 sq. ft. (15.2 m².)
Length	20 ft. 5 in. (6.22 m.)	Speed range	36-75 m.p.h. (58-121 km./h.)
Height	6 ft. 10 in. (2.07 m.)		



THE TINSYDE.—Mr. Leslie Hamilton's Martinsyde F.6. This is the machine which belonged to Mr. Raynham.

SPECIFICATION OF THE MARTINSYDE.

Span (top)	32 ft. (9.76 m.)
Span (bottom)	29 ft. 4 in. (8.92 m.)
Length	24 ft. 6 in. (7.46 m.)
Wing area	310 sq. ft. (29 m².)
Weight loaded	2,250 lbs. (1,020 kg.)
Engine	200 h.p. Viper
Wing loading	7.25 lbs./sq. ft. (35 kg./m².)
Power loading	7.5 lbs./h.p. (3.4 kg./h.p.)
Speed range	40-145 m.p.h. (65-234 km./h.)

THE MARTINSYDE F.6.

The Martinsyde F.6, which is entered by Mr. Leslie Hamilton, is well known as having previously been the property of Mr. Raynham—who flew the machine in many races.

The F.6 is a two-seater version of the F.4 single-seat fighter—produced originally before the Armistice—a machine which compares so favourably with any other machine of its class that has yet been produced, that one may quite possibly be infringing on the Air Ministry's "secret" list, by referring to it.

The F.6 is a single-bay biplane with a fairly heavy stagger with two tandem seats, both behind the wings. The engine is a 200 h.p. Wolseley Viper.


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THE PANDER SINGLE-SEATER.

The Pander single-seater, although of Dutch origin, is by no means unknown in this country. It attracted a good deal of favourable attention at the last Paris Show, and still more on the occasion of its recent visit to Croydon.

The machine is a cantilever monoplane with the wing on the top of the body, with the pilot's cockpit arranged between the wing spars, so that his head projects above the wing. The machine is entirely built of timber—some few metal fittings alone excepted—and is built in a cabinet-making factory. If the standard products are comparable for workmanship with the light aeroplane, they must be very good indeed.

The fuselage is oval in section, veneer-covered, and built on spruce stringers and laminated poplar formers. The wing is in one piece, and has attached to it the cowling for the pilot's cockpit. This unit drops into a space left in the upper covering of the body, so that the wing spars lie over a pair of specially stout bulkheads, and are held in place by four bolts, which tie it down to a pair of steel straps running round the body as a whole.

The two legs of each Vee of a normal undercarriage are attached to these same straps just below the wing. The two spars are box-section, with spruce ribs, and a three-ply covering is fitted over the leading edge.

The engine used is the three-cylinder, 25 h.p. Anzani.

A number of these machines have recently been delivered to the Dutch Army in order to provide Air Service pilots with flying practice at a reasonable cost.

SPECIFICATION.

Span 8 m. (25 ft. 3 in.)	Weight loaded 308 kg. (678 lbs.)
Length 4.95 m. (16 ft. 3 in.)	Wing loading ... 28.5 kg./m². (5.65 lbs./sq. ft.)
Height 1.65 m. (5 ft. 4 in.)	Power loading ... 12 kg./h.p. (25 lbs./h.p.)
Wing area 10.8 m². (120 sq. ft.)	Speed range ... 50-130 km./h. (31-81 m.p.h.)
Weight empty 190 kg. (428 lbs.)	



FROM HOLLAND.—The Pander monoplane which will be flown by Col. The Master of Sempill.

GEO. PARNALL AND CO.

Mr. Parnall enters for the meeting two Pixie Monoplanes, one the single-seater, Pixie II., fitted with a 1,000 c.c. Blackburne 60° Vee twin engine, which is to be flown by Mr. Courtney, and a Pixie III. two-seater, with a geared Cherub engine, which is to be flown by Sq.-Ldr. R. A. de H. Haig.

The Pixie II.

This machine is the small-winged Pixie that appeared at the 1923 Lympne meeting—where with a 750 c.c. Douglas engine it made the fastest lap of the week. It will be remembered that the machine reappeared at Lympne last year, with the same engine as that now fitted, and competed in the race for the Grosvenor Cup, again putting up a remarkable speed despite the fact that a minor mishap made it necessary to use an unsuitable airscrew.

The Pixie is a low-wing monoplane, with strut bracing running down from the fuselage to the wing spars. Its most noticeable characteristic is the plan form of the wing, which has a parallel chord from body to the strut attachments, and then has the chord very much tapered by sloping the trailing edge forwards. The ailerons are attached solely to this tapered section, and are themselves of uniform chord. This has the effect of reducing considerably the torsional moment caused by the ailerons—or in other words to render the wings effectively stiffer in torsion than with the more usual disposition of lateral control surfaces.

Another noteworthy point concerning the Pixie II. is the very unusual undercarriage. Two steel tube struts, sloping forward, and outward, are attached one on each side, to the top and bottom of the fuselage. These struts project downwards and are rigidly attached to a horizontal axle, which projects outwards some way beyond the struts, and carries the wheels in the usual way. There is no bracing to this carriage, which takes all landing and taxying loads on the elasticity of the three tubes.

This undercarriage, despite its simplicity and apparent weakness, has proved to be extraordinarily strong and satisfactory.

SPECIFICATION.

Span 18 ft. (5.5 m.)	Landing speed ... 45 m.p.h. (73 km./h.)
Length 18 ft. (5.5 m.)	Top speed 105 m.p.h. (170 km./h.)
Wing area 60 sq. ft. (5.6 m².)	Ceiling ... 14,500 ft. (4,400 m.)

The Pixie III.

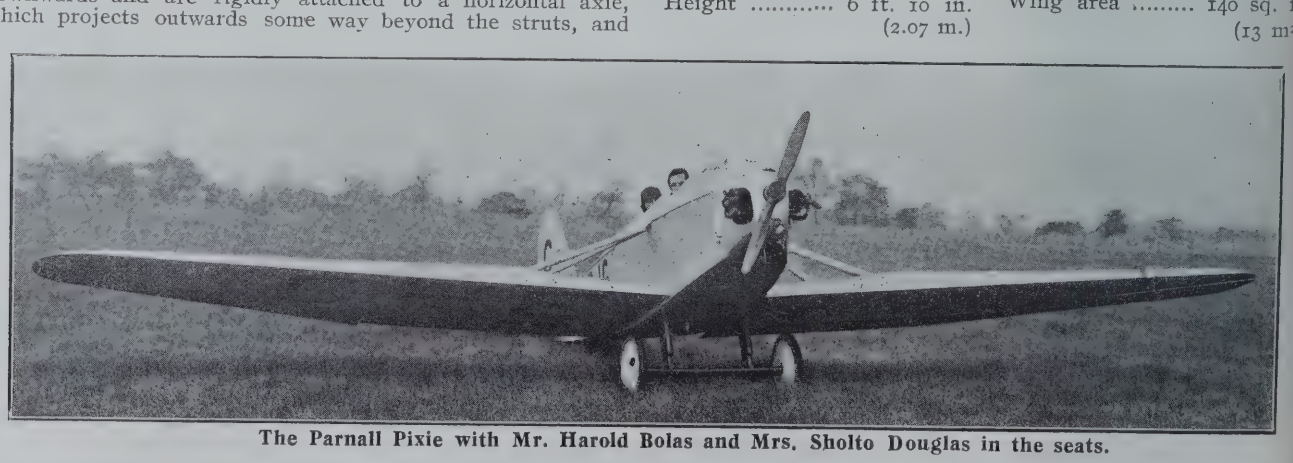
Apart from the fact that it is of larger dimensions, is fitted with two seats in tandem, and that the two legs supporting the undercarriage axle are telescopic and fitted with steel springs and an oleo damper, the Pixie III has the same characteristics as the Pixie II.

The engine is a geared-down Bristol Cherub of 1,096 c.c.

The Pixie III will be flown as a monoplane, but it will be remembered that these machines can be converted to biplanes by the addition of a top plane supported on a steel tube cabane from the fuselage and a pair of raking interplane struts. It was in this biplane form that the machines appeared at Lympne, and the performance of the monoplane this year should be distinctly interesting.

SPECIFICATION.

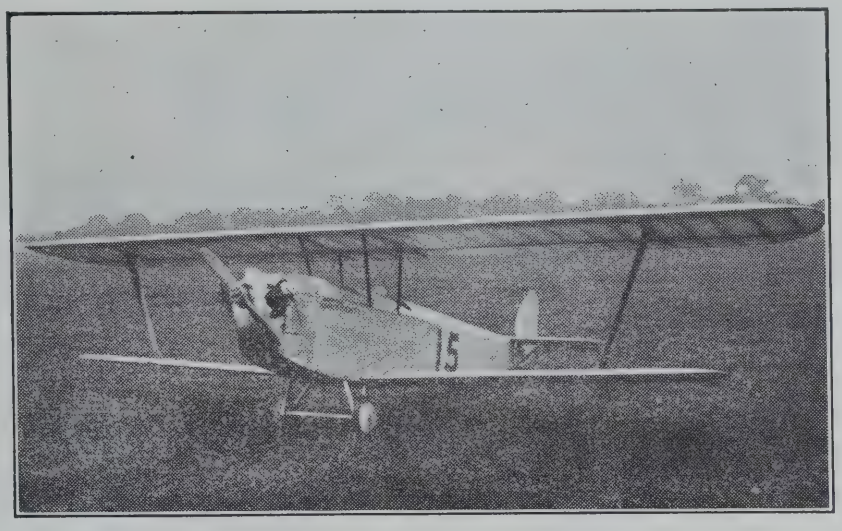
Span 32 ft. 4 in. (9.85 m.)	Width folded 8 ft. 6 in. (2.59 m.)
Length 21 ft. 3 in. (6.47 m.)	Wing area 140 sq. ft. (13 m².)
Height 6 ft. 10 in. (2.07 m.)	



The Parnall Pixie with Mr. Harold Bolas and Mrs. Sholto Douglas in the seats.

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THE R.A.E. HURRICANE.

This machine was originally produced by the R.A.E. Aero Club in 1923, and made its first public appearance at Lympne in the meeting of that year, where it was hoped that it would do well in the speed trials. Unfortunately, engine and airscrew troubles were encountered, which disappointed this hope. It has since been altered in certain important rspects—of which the more important have been the fitting of a Vee undercarriage in place of a laminated spring axle, and of a Bristol Cherub engine.

The Hurricane is a cantilever monoplane, with a very deep triangular fuselage. The wing sits directly on the top rail of the fuselage, and is of distinctly small area, and has a pronounced taper both in chord and thickness.



FROM FARNBOROUGH.—The R.A.E. Club's Hurricane monoplane, which will be flown by Flt. Lt. Chick.

DR. REID'S S.E.5a.

Dr. Whitehead Reid, of Canterbury, who is pretty certainly Britain's most persistent private user of aircraft, has entered his Renault-engined S.E.5a, which he will fly in the International and in the Private Owners' Handicaps.

This machine is the only one of its kind in existence and was concocted from a heap of S.E.5a parts reduced to produce by a wise and paternal Government by Mr. Godfrey Wigglesworth. The only alteration in the machine from the standard S.E.5a is the lengthening of the fuselage longerons to bring the Renault engine further forward and to obtain the same position of C.G. as was obtained with the heavier Viper.

It is interesting to record that the engine in this machine has been looked after and overhauled by Dr. Reid's chauffeur who had never seen an aero-engine at close quarters till after the war, and that although the machine has been very heavily worked—it flew in the first Grosvenor Cup Race, the last Aerial Derby Handicap and has covered practically the whole of South-East England—it has never had a forced landing.



A FAMOUS SURGEON.—Dr. Whitehead Reid, the famous Old Tonbridgian, with his S.E.5 (80 Renault). Dr. Whitehead Reid was an R.A.F. doctor at Heliopolis during the war and learned to fly in his spare time.

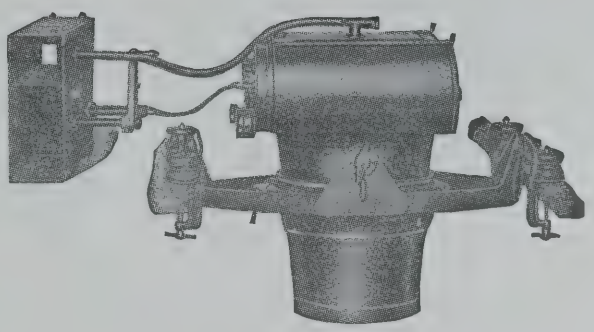




FOUR PILOTS.—From left to right, Mr. A. N. Kingwill of the Beardmore Wee Bee, Mr. J. Lankester Parker of the Short, Mr. Leslie Hamilton of the Martinsyde and Mr. R. L. Preston of the B.E.2e.

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THE SOPWITH GNU.

The Gnu was designed and built for light passenger and commercial work in 1920, and in general lines and disposition greatly resembles a considerably enlarged version of the famous Sopwith Pup.

It is a normal tractor biplane with two-bay wing bracing fitted with a pilot's cockpit below the centre section, and two side-by-side seats under a glazed roof behind.

The engine is a 110 h.p. Le Rhône.



AN OLD GNU.—The Sopwith Gnu of 1919 vintage which will be flown by Mr. J. R. King.

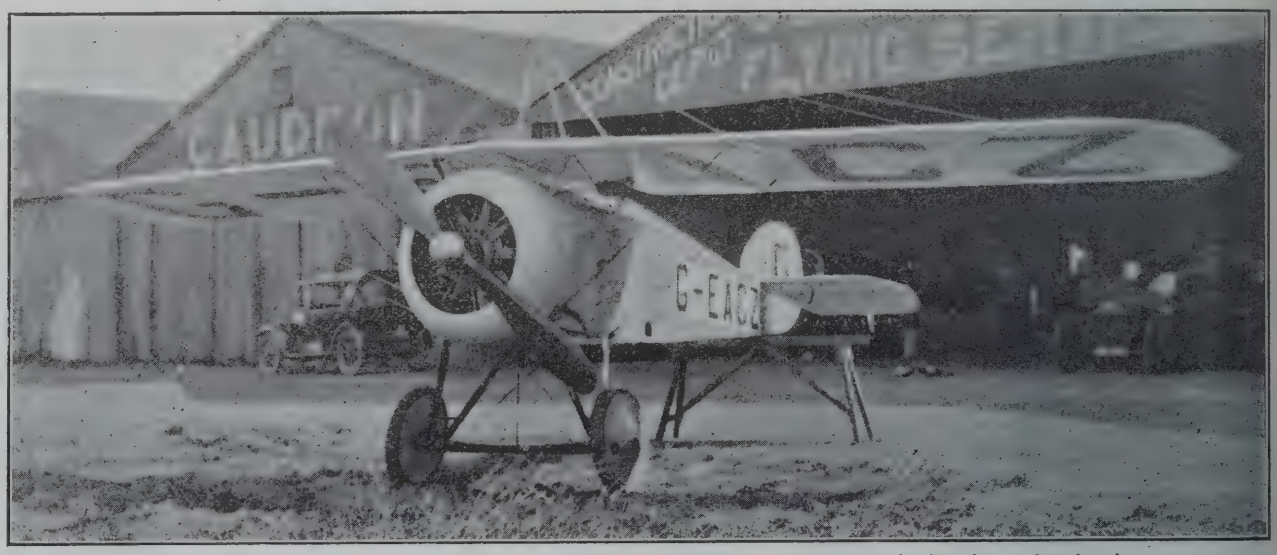
THE SOPWITH SWALLOW.

This machine, entered by Mr. Cecil Clayton, with Mr. Phillips as pilot, is the only one of its type in existence and will be unfamiliar to most people. The machine was concocted either just before or just after the war for the use of the late Mr. H. G. Hawker, and was flown by him in public at one or two of the earlier post-war flying meetings. It will compete in the International and in the Private Owners' Handicap.

The fuselage is that of a Camel to which has been applied a parasol monoplane wing, supported on a pyramidal steel tube cabane and braced above and below by streamline wire bracing. The wing is markedly swept back from centre line to tip. The tail unit is unaltered from that of the Camel and the engine is a 130 h.p. Clerget.

The only data available are that the span is 26 ft. 6 in. (8.1 m.) and the overall length is 18 ft. 9 in. (5.7 m.).

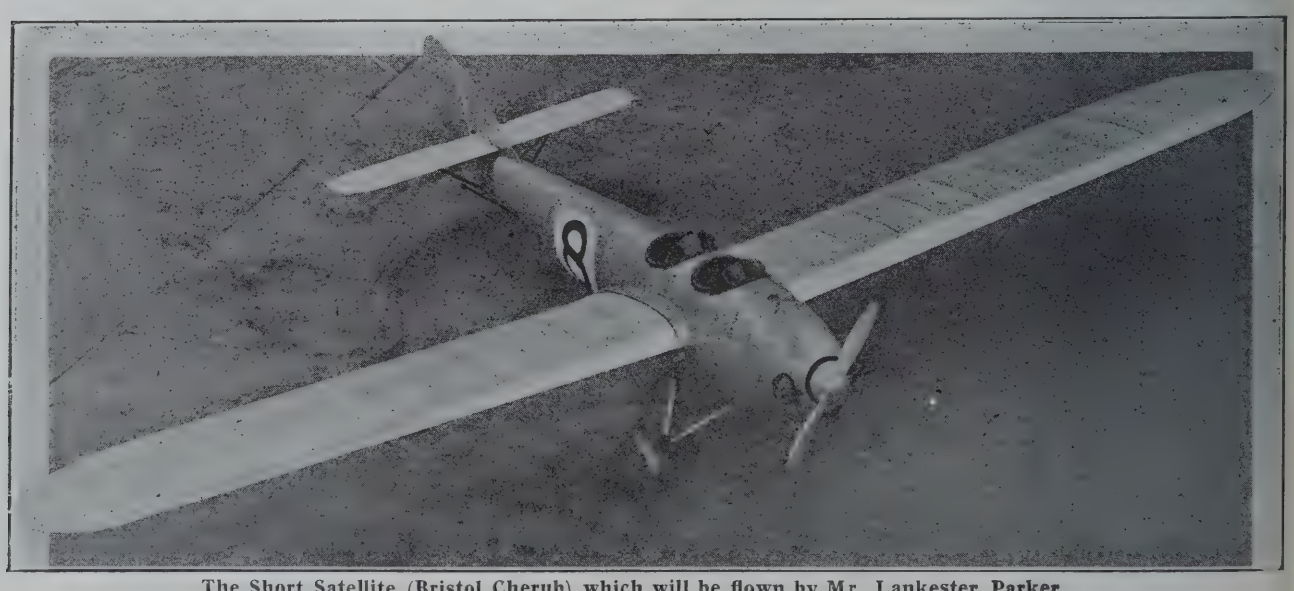
THE FIRST PRIVATE RUNABOUT.—The Sopwith Swallow which was built by or for the late Mr. Hawker as a private runabout.



THE SHORT SATELLITE.

This machine, which will be flown by Mr. J. L. Parker, was produced for last year's two-seater light aeroplane meeting, and is one of the most interesting of British light aeroplanes. It is notable for the large extent to which it is constructed of light alloy.

The fuselage in particular is a duralumin monocoque of excellent streamline form and of very light yet robust construction. The wings—of the cantilever monoplane type—are attached about half-way up the body and the two seats are arranged one over the front and the other a little behind the rear spar.



The Short Satellite (Bristol Cherub) which will be flown by Mr. Lankester Parker.

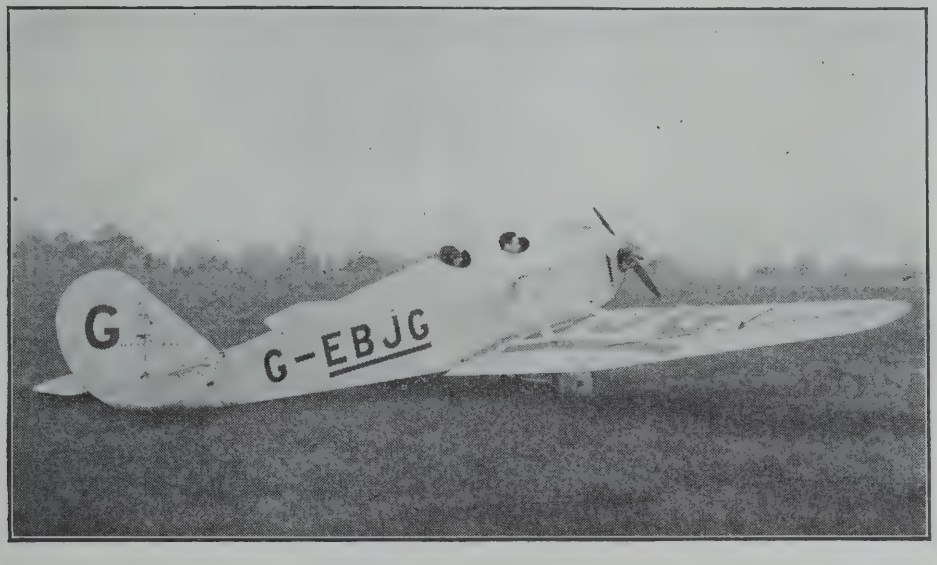
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THE ENGINES AT LYMPNE.

THE ANZANI 1,100 C.C.

This engine, produced by the British Anzani Engines, Ltd., for last year's Lympne meeting, is a 60° Vee twin air-cooled engine, of a type developed from the very successful air-cooled motor-cycle and light car engines, for which this firm is so well known. It is fitted with four overhead valves per cylinder, and is specially arranged to run in the inverted position.

Owing to the great haste which was imposed on the builders by various indecisions on the part of other bodies as to the rules of the 1923 competition, it was impossible properly to test this engine before the contest, and some considerable amount of trouble was encountered in regard mainly to valve breakages. Nevertheless the engine proved its capacity to develop a very considerable output.

In the interval which has since elapsed these teething troubles have, it is said, been completely overcome. Unfortunately no precise data as to this type is at present available.

THE 25 H.P. ANZANI.

This engine—used in the Pander monoplane—is quite well known in France and in several other European countries, as a very serviceable power-plant for light single-seaters. It is a three-cylinder radial with cast-iron cylinders, which differs in external appearance from the Y type Anzani of pre-war days only in the possession of mechanically-operated instead of automatic inlet valves.

SPECIFICATION.

Bore 89 m./m. Weight bare 50 kg.
Stroke 105 m./m. (110 lbs.)

THE 50 H.P. ANZANI.

This engine, fitted to Flt. Lt. Soden's Whippet, is a six-cylinder (two-throw crank) radial, generally similar to the three-cylinder 25 h.p. engine of the same make.

SPECIFICATION.

Bore 90 m./m. Weight Bare 78 kg.
Stroke 120 m./m. (162 lbs.)

THE ARMSTRONG-SIDDELEY LYNX.

The Lynx engine, fitted to the 504 N Avro, is produced by Armstrong-Siddeley Motors Ltd., and is, practically speaking, one half of the famous 385/400 h.p. Jaguar engine of the same make.

The Lynx is a seven-cylinder, single-row, air-cooled, radial engine, rated at 180 h.p. It is fitted with steel cylinders with aluminium heads, of a very simple but ingenious construction, which has certainly overcome the many difficulties of maintaining a permanently tight joint between barrel and head.

The Lynx is in less extensive use than the larger Jaguar, but has been found to be an ideal engine for advanced training machines and for other similar purposes where the maintenance of a high degree of reliability under severe working conditions is essential.

SPECIFICATION.

Bore 5 ins. (127 m./m.)
Stroke ... 5½ ins. (140 m./m.)
Diam. over cylinder heads 44 ins. (1.12 m.)
Rated output 180 h.p. 1,620 r.p.m.
Max. output 200 h.p. 1,750 r.p.m.
Fuel consumption 53 pints (0.3 litres) per h.p. hour.

THE AIRCRAFT DISPOSAL CO. LTD.

As has long been usual at British aeroplane race meetings the Aircraft Disposal Co.'s goods will play a considerable part. On this occasion, however, they will be represented mainly by new products of their own design and construction and notably by the new Cirrus engine which is the power plant of the De Havilland Moth—a machine which can scarcely fail to arouse more public interest than any other competitor.

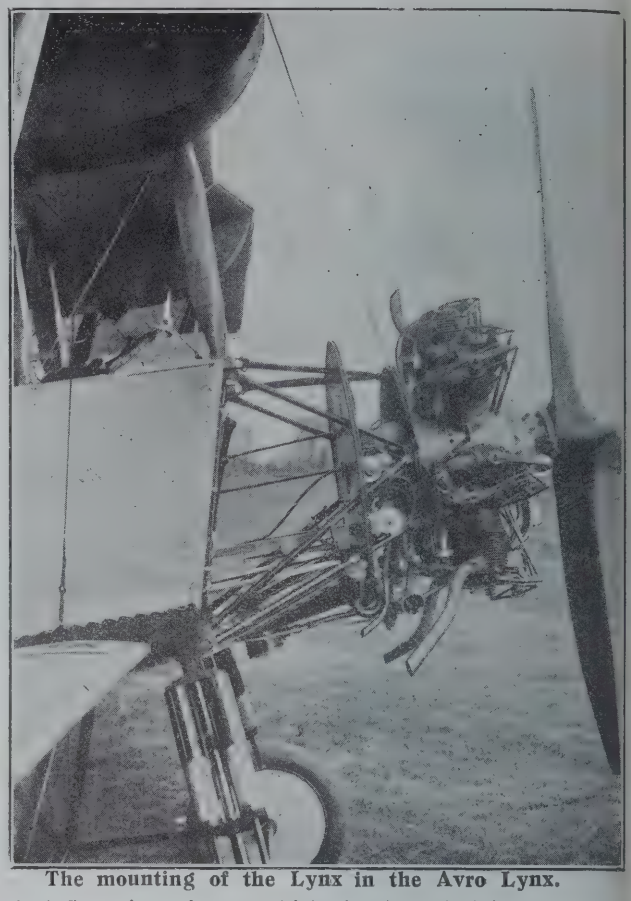
The Cirrus is a four-cylinder vertical air-cooled engine with an R.A.C. rating of 27.3, which develops 60 b.h.p. at 1,800 r.p.m. its normal speed, and a maximum output of 65 b.h.p. at 2,000 r.p.m. As aero-engines go nowadays the Cirrus is fairly heavy for its power, and does not develop a remarkably high mean effective pressure, which means practically that it is robust and not in any way highly stressed. As a result it may confidently be expected to prove extremely sturdy and reliable and to require only the minimum of attention in service. Experience so far confirms this expectation strongly.

For a low-powered aeroplane for training, sporting, and the private owner's purposes these qualities of reliability and simple maintenance far outweigh in importance light weight and high performance. That this is the case is shown by the very remarkable performance of the De Havilland Moth which uses this engine.

The Cirrus has cast-iron cylinders adequately finned and detachable aluminium alloy heads with push-rod operated overhead valves. The combined cylinder and head units are held to the crankcase by four long studs passing through lugs in the head casting. The crankcase is unusually deep, thus giving extreme rigidity to the whole engine—a fact which has doubtless much to do with the smoothness of running and absence of vibration which are characteristic of this engine.

The crankshaft is of very ample dimensions and is carried in five bearings—three of them white-metal lined bronze bushes with a ball-race at either end. The three bronze bearings—which are between throws—are carried entirely by the upper half of the crankcase.

The lower half of the crankcase carries the lower half of



The mounting of the Lynx in the Avro Lynx.







MORE AND MORE PILOTS. — From left to right, Col. The Master of Sempill, Flt. Lt. J. S. Chick (playing Rugger), Mr. Alan J. Cobham (looking pleased).

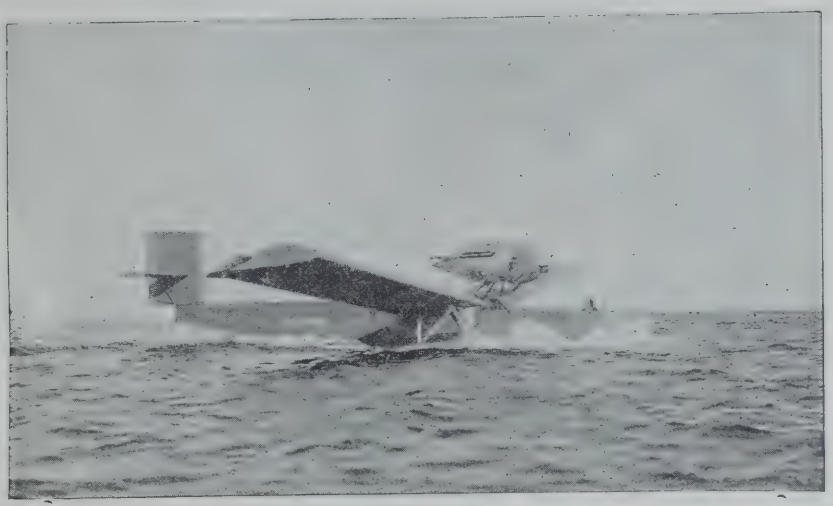
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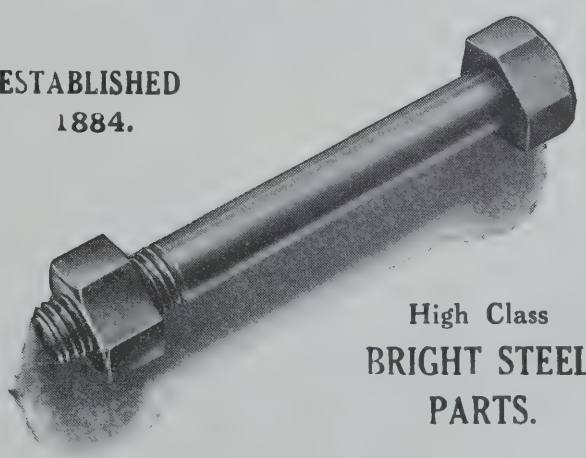
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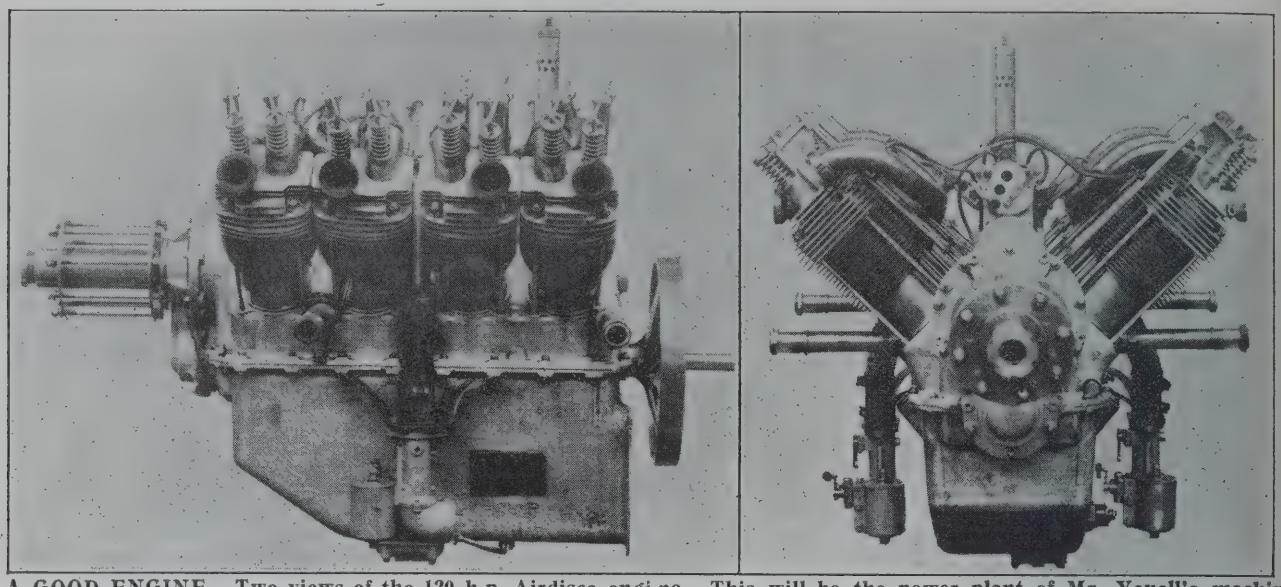
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A GOOD ENGINE.—Two views of the 120 h.p. Airdisco engine. This will be the power plant of Mr. Youell's machine.



The Bristol Cherub of Mr. Rey Fedden's design fitted to the Avro Avis.

the end ball-bearings and the thrust race, and forms an oil sump at the bottom of which a drowned oil pump is fitted.

Pistons are of aluminium alloy, and the connecting rods are of H section steel. The gudgeon pin is fast in the rod and runs in the piston itself. The big end bearings are white metal cast direct into the rods.

A camshaft is carried in three bronze bearings at one side of the upper crankcase and is spur driven from the crankcase. A spiral gear on the camshaft drives the oil pump. The oil supply from the sump is fed directly to the crankshaft main bearings. Oil overflowing from these bearings is caught by an oil thrower on the crankweb and is forced centrifugally to the crankpin and big end. Excess oil thrown out by the thrower and big ends provides splash lubrication to cylinder walls, little end, and camshaft bearings—which are open to the interior of the case. A special jet throws oil on the camshaft gear.

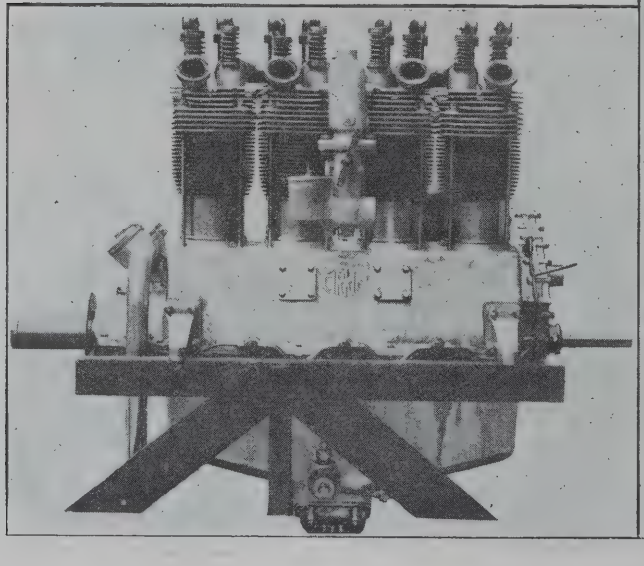
A 4-cylinder B.T.H. magneto with an impulse starter is driven from the camshaft and is the standard ignition gear. A coil and distributor ignition gear can be used instead, and it is possible to use both systems and provide alternative if not dual ignition.

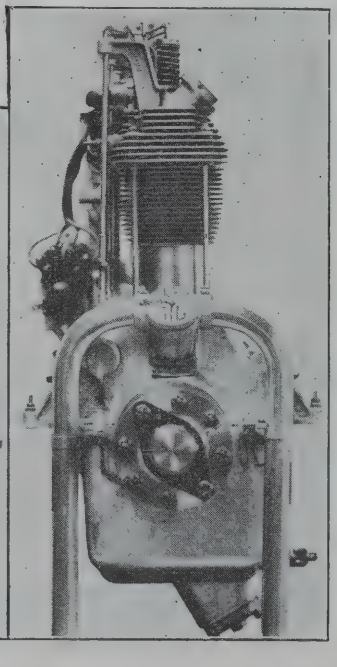
A Zenith F.S.42 type carburettor coupled to the end of the induction manifold furthest from the airscrew provides mixture.

A hand-starter of the "kick-starter" type is fitted to the end of the crankshaft and the operating lever is arranged to be coupled to a cable leading to a hand lever in the cockpit.

The airscrew boss is driven directly from the crankshaft.

Four patches each with four studs are fitted on either side at each end of the crankcase for engine-bearer supports, which can be arranged to suit the needs of individual types of aeroplanes.





SPECIFICATION.

Bore	105 m./m.
Stroke	130 m./m.
Cylinder capacity	4,500 c.c.
Weight	260 lbs.
Petrol consumption (60 b.h.p.)	5 gals. per hour (0.61 lbs./h.p. hour)
Oil consumption (1,800 r.p.m.)	1.2 pints per hour
Normal output	60 h.p. 1,800 r.p.m.
Maximum output	65 h.p. 2,000 r.p.m.

THE A.D.C. CIRRUS, which will be the power plant of the De Havilland Moth.

THE AIRDISCO 120/140 H.P. ENGINE.

The Airdisco is an eight-cylinder 90° Vee fitted with a two to one reduction gear. Cylinders and cylinder heads are identical with those of the Cirrus, and the general design of the two types in regard to such details as lubrication and type of bearings employed are very similar.

The camshaft which is carried between the two rows of cylinders is coupled to an exceedingly robust spur gear which also drives the airscrew shaft. This gear is carried between two large ball-races.

The piston rods are of the articulated type, with the subsidiary rod running on a steel pin in a bronze bush in the master rod. The big end is white metal cast into the rod.

A single eight-cylinder B.T.H. magneto is driven by a spur wheel meshing with the airscrew shaft gear. Here again alternative battery coil and distributor ignition may be used. Two Zenith K.24 carburettors are used.

The Airdisco has not only passed Air Ministry type tests, but has been given very extensive trials in the air—both on the D.H.51 and on an Avro. It has proved to be an exceedingly reliable and economical engine which has very markedly increased the all-round performance and utility of machines which would otherwise have to depend upon the 80 h.p. Renault, or some type of rotary engine.

THE BRISTOL ENGINES.

The Cherub.

The Cherub Series II which did so well in last year's competitions reappears this year in the Bristol Brownie, the Beardmore Wee Bee, the Avro Avis and the R.A.E. Hurricane—if in no others. It is now an open secret that a new Cherub—the Series III, of somewhat larger cylinder dimensions, greater rated output and provided with a number of refinements—is now in an advanced stage of development and that it may very shortly be expected to pass its 100 hour type test. It may therefore be expected that the present meeting will be the last at which two-seater machines will fly with 1,100 c.c. Cherubs, though there is no doubt that the original type will long remain in favour for single-seaters.

The Cherub Series II is a two-cylinder opposed engine with steel cylinders, and composite steel and aluminium cylinder heads, and a very ingenious valve gear which entirely overcomes the difficulty, so frequently found in air-cooled engines, of a large change in the valve tappet clearance between the cold state and the steady running temperature of the engine.

The Lucifer.

The Bristol Lucifer Series III will take part as power plant of the Bristol school machine. The Lucifer is a three-cylinder air-cooled radial with the Bristol type of compound steel and aluminium cylinder head.

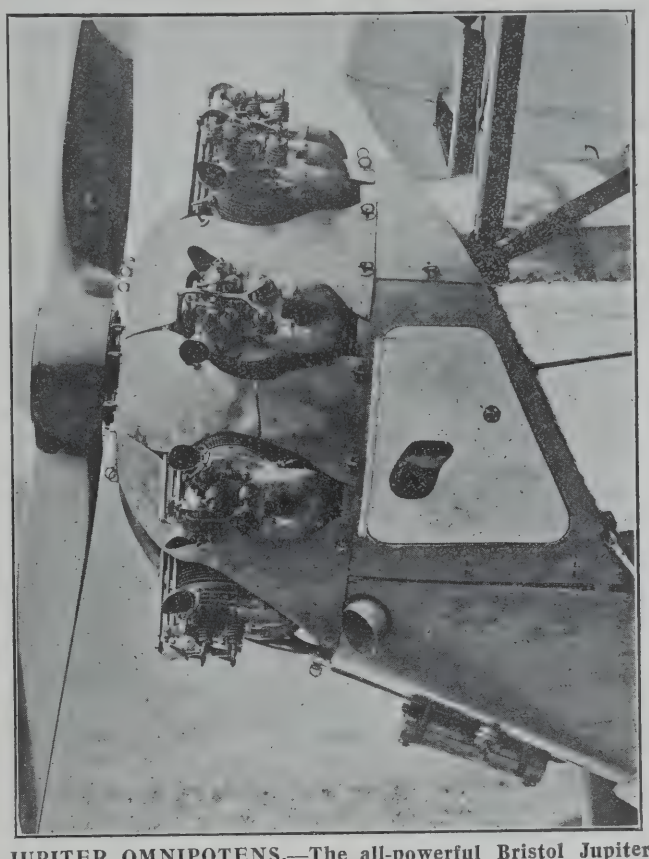
It is essentially a simple and robust moderate powered engine for school or similar hard service which has proved its reliability and economy very conclusively both in this country and abroad. Like the Cherub Series II, the Lucifer III is now about to be superseded by a later model—the Lucifer IV. This engine is of the same dimensions as the original, but incorporates a number of improvements in detail which not only add to its reliability but increase its normal output by approximately 20 per cent.

This Series IV Lucifer has now completed its type test of 100 hours.

The Jupiter.

The Jupiter engine of the Bristol Bloodhound is apparently to be the highest powered engine to compete at Lympne, where it will take part in the International Handicap Race. The Jupiter engine is unquestionably the most powerful air-cooled radial engine in extensive use to-day and it has behind it a remarkable record of reliability in service.

The Bristol Jupiter is a nine-cylinder single row radial, incorporating the Bristol cylinder construction with the compound steel and aluminium alloy head. The valve gear is fitted with a very simple temperature compensating gear which secures a constant tappet clearance whether the engine be hot or cold. The induction system is one of the most noteworthy features of the Jupiter. Three separate



JUPITER OMNIPOTENS.—The all-powerful Bristol Jupiter engine as fitted to the Bristol Bloodhound. It was designed by Mr. Roy Fedden and is one of the best radial engines in the world.

and independent carburettors are used, each supplying three of the nine cylinders. These carburettors all feed into one annular induction chamber cast into the back of the crankcase. The induction chamber is divided up into three separated passages by the insertion into it of a cast aluminium ring in which are formed three spiral flutes, the pitch of each flute corresponding with spacing of every third cylinder, and the carburettors are so placed that each connects with one of these flutes.

Nine equally-spaced induction pipes lead from the chamber in the crankcase to the inlet valve of each cylinder, and owing to the pitch of the flute in the distributor ring it will be obvious that cylinders 1, 4 and 7 are connected with one flute and one carburettor, cylinders 2, 5 and 8 with the second flute and carburettor, and cylinders 3, 6 and 9 with the remaining flute and carburettor. Also because of the spiral path of each flute the gas passing through has a marked spin imparted to it which serves to keep the petrol in the mixture in a lively divided state and prevents condensation in the induction chamber.

SPECIFICATIONS OF THE BRISTOL ENGINES.

	Cherub	Lucifer	Jupiter
No. of Cylinders	2	3	9
Bore	85 m./m.	5·75 in. (146 m./m.)	5·75 in. (146 m. m.)
Stroke	96·5 m.	6·25 in. (159 m./m.)	7·5 in. (190 m./m.)
Cubic Capacity	1095 c.c.	7,980 c.c.	28,750 c.c.
Rated Output	24 h.p. 2,400 r.p.m.	100 h.p. 1,600 r.p.m.	400 h.p. 1,575 r.p.m.
Max. Output	33 h.p. 3,200 r.p.m.	—	436 h.p. 1,750 r.p.m.
Weight bare	86 lbs. (39 kg.)	324 lbs. (147 kg.)	780 lbs. (354 kg.)
Fuel Consumption at Rated output	1·4 gals. (6·8 litres) p. hour	7·5 gals. (34 l.) p. hour	28 gals. (127 l.) p. hour







STILL MORE PILOTS.—From left to right Mr. B. Youell, Mr. J. H. James and Mr. Frank Courtney.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 26; Tuesday, 23; Wednesday, 23; Thursday, 27; Friday, 24; Saturday, 20; Sunday 9.

IMPERIAL AIRWAYS LTD.

London—Paris—Zurich; London—Ostende—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 53, passengers 260, freight 14 tons.

AIR UNION:

Paris—London: Machines 62, passengers 467, freight 11 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 24, passengers 128, freight 2 tons.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 9, passengers 33.

SPECIAL MACHINES:

DE HAVILLAND HIRE:

Machines 2, passengers 5.

AIRCRAFT DISPOSAL CO.:

Machines 2, passengers 1.

Total number of trips by British machines: 57, carrying 266 passengers. Foreign machines: 95, carrying 628 passengers.

Comparative Figures:

For week ending July 26:

Machines, 152; Passengers, 894; Crews, 213; Total personnel, 1,107.

Corresponding week, 1924:

Machines, 207; Passengers, 1,055; Crews, 255; Total personnel, 1,310.

Corresponding week, 1923:

Machines 122; Passengers, 565; Crews, 212, Total personnel, 777.

Corresponding week, 1922:

Machines, 159; Passengers, 366; Crews, 251; Total personnel, 617.

Corresponding week, 1921:

Machines, 101, Passengers, 460; Crews, 126; Total personnel, 586.

Corresponding week, 1920:

Machines, 82; Passengers, 175; Crews, 104; Total personnel, 279.

Corresponding week, 1909:

Machine, 1; Passenger, 0; Crew, 1; Total personnel, 1.

Croydon Notes.

Imperial Airways Ltd., that great British combine of air lines, whose directors are said to be the last word in Business Men (with Capital Letters), has been quite busy again this week with its three or four oddments of air liners. On Wednesday, for instance, they only had one machine which they could send to Paris, against eight by the Air Union which carried 86 passengers.

The Aircraft Disposal Company Ltd., had an important foreign visitor who came over by the Air Union from Paris on that day. The A.D.C. were naturally anxious to send this personage back to Paris in a British machine, but as Imperial Airways could not raise a machine he was sent back in one of the A.D.C.'s own D.H.9s, piloted by Mr. Perry.

Some of the machines that Imperial Airways have got are running extremely well, thanks to the pilots and the management. The wonderful old Vimy which was laid in 1919 or thereabouts, and has been performing well ever since, and seems to be the mainstay of our Great British Air Combine (formed for the Glory and Advancement of Civil Aviation) in this year of Grace 1925.

For instance, on Thursday, it left Croydon at 05.38 hrs., piloted by Mr. R. H. MacIntosh and carrying a full load of gold. In rain and low clouds, Mr. MacIntosh flew to Paris and thence, with a stop *en route* for petrol, to Basel, and thence to Zurich, which he reached at 14.50.

He started back at 15.57 with a considerable load, and went via Basel and Paris. He left Paris for Croydon after 20.00 hrs., in very bad weather. Owing to atmospherics he could hear little on his wireless. Therefore he asked Lympne to fire up green rockets if the weather at Croydon were good and red ones if it were bad. He did not see the Lympne rockets until he was the Croydon side of Ashford, and then he saw that they were red, and so he returned to Lympne after 14 hours and 18 minutes in the air. He subsequently found that the weather at Croydon was good, and that the order to Lympne to fire red rockets had been sent in error. And owing to the wind he took longer to get back to Lympne than if he had gone on to Croydon. And yet there was no mention of this very fine flight in any of the daily papers, although they had all the information. Why not?

Meanwhile Imperial Airways Ltd. continues to thrive on the flying pay which they do not have to pay their pilots owing to lack of machines. This should help them along quite a lot should they fail to get the extra subsidy which they are said to be demanding from the Government. Anyhow, it seems improbable that any Government, more especially one over which Mr. Baldwin presides, could be so foolish during the present need for economy, as to grant extra subsudy in such an undeserving case.

The reduction in the size of Imperial Airways fleet is going on so steadily that speculation is now rife as to whether either or both of the fleet will be in operation next week.—G. D.

Air Line Accidents.

The N. V. Nederlandsche Vliegtuigenfabriek, "Fokker," Vliegtuigen, more commonly known as the Fokker Co., of Amsterdam, wrote on July 23 as follows:—

In last week's number of THE AEROPLANE a letter from Mr. Baldwin Raper is quoted in the editorial article. In this letter some remarks are made which to some extent cast reflections on our F.III machine which we cannot consider as being quite fair. It should be recollected that the F.III machines were produced in 1920 and therefore cannot be considered as up-to-date. Of course the air lines which have same in use, cannot be expected to throw them away just because something better has been produced.

The accidents referred to in Mr. Raper's letter cannot be considered to have been due to the flying qualities of the machine in question; as the pilot should have known his machine sufficiently to take the load and ground conditions into account. From Mr. Raper's account we should say that the pilot was either in ill-health and should not have attempted to fly or he had not received sufficient instruction from the chief pilot of the line.

These are points which are apparently somewhat neglected by some German air lines, though we do not think accidents of this kind often happen.

The technical side has apparently not been dealt with in your article. The F.III machines were constructed at a time when it was even more important than it is now that commercial aeroplanes could be operated in the most economical way and the horse-power loading for a machine of its time was therefore necessarily high.

The run taken by the machine to get off and the initial climbing angle, we find, differs considerably, however, with various pilots. Besides which this of course varies very much with ground or wind conditions.

Because every pilot cannot get the machine off quickly and the machine when fully loaded (and therefore operating on the most economical basis) takes a rather longer run than a machine of 1925 design, the air lines cannot afford to put it on the scrapheap, just as little as a railway company is expected to discard its two or three axled cars of 1900 design just because since then improved cars with bogies have been built, or discard four-axle cars of 1910 design because in 1925 de luxe Pulmans with extra good springing have been produced. Nobody refuses to ride in the older cars which cannot be considered as safe as the newer types.

Railway companies take precautions and see to it that drivers don't run trains with older cars as fast as trains of the latest types. And in the same way air line pilots should be instructed to take precautions when using older machines.

This is of course elementary, you will say, but we think your editorial article and Mr. Raper's letter in particular does not take this into account sufficiently, and, as we have said, rather reflects on the qualities of a machine which has given and is still giving excellent service on several air lines, which show remarkably good regularity figures and have only had very few accidents.

An Example Worth Following.

Owing to the fact that their experimental department is so fully engaged on preparing a challenger for the Schneider Trophy, the Gloucestershire Aircraft Company have not been able to participate in the Lympne meeting.

Therefore in order actually to assist the meeting the directors have sent a donation of £100 to the Royal Aero Club Racing Fund.

One suggests that if all other firms who cannot enter machines for the various races would support the fund in a similar manner, sporting flying in this country would be placed on a solid foundation.

The Royal Aero Club and the Press.

The following appeared in a recent issue of *The Newspaper World*:—

ROYAL AERO CLUB AND THE PRESS.

KEEPING THE PRESS "WELL UNDER CONTROL."

There was an echo at the meeting of the Harrogate Town Council on Monday of the complaints that appeared in daily and weekly newspapers of the treatment of the Press at the Control on the Stray at Harrogate for the King's Cup Air Race.

In a letter read by the Town Clerk, Commander Perrin, secretary to the Royal Aero Club, stated:—

"I have heard no grumbling from the Press. In any event, I thoroughly agree with the action taken, as photographers on previous occasions have been a great nuisance, and nothing is more disconcerting to a competitor about to land than to find the photographers

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running all over the aerodrome so as to get a good picture. I gave particular instructions to our officials at all Controls to keep the Press and photographers well under control."

Referring to the foregoing, *The Yorkshire Post* writes:—"It is not so much to say that the preliminary publicity given to the local arrangements stimulated interest and influenced decisions to visit the town. After having rendered this service, the Press learn that the secretary of the Royal Aero Club had given particular instructions to keep them 'well under control.'

"Apart from the offensiveness of this observation, there is another aspect of the matter. Furnished with permits issued through the Town Clerk's Department, the Pressmen went to the aerodrome under the impression that they were the guests for the occasion of the Mayor and Corporation. So thoroughly was the bidding of the secretary of the Royal Aero Club carried out that they were made to feel like convicts in a compound."

The Harrogate correspondent of *The Yorkshire Post* wrote:—"Apart from the use of the Stray, which is public land, the Royal Aero Club obtained funds for prize money from Harrogate ratepayers, hotel proprietors, and shopkeepers. Undoubtedly, the raising of these sums was facilitated, to say the least, by the prospect of the town getting a good advertisement out of the publicity that would follow from the fixing of a Control at Harrogate. The Press were, of course, the principal means by which this publicity could be obtained. That it was obtained on the first day of the race was largely due to Mr. Stuart Hirst, chairman of the Yorkshire Aeroplane Club, who was strongly opposed to the action taken by other officials. Himself an old newspaper man, Mr. Hirst was able and willing to give invaluable assistance. He did for the reporters, in fact, what they understood they had been invited to do for themselves, but were not allowed to do. On the second, and more important, day the publicity which Harrogate got in return for the use of the Stray, the expenditure of public money, and the contributions of ratepayers and tradespeople to the R.A.C. prize funds, was exactly nil."

The Newspaper World still thinks that on occasions of this kind definite arrangements, to which promoters, Press, and police would be alike bound, should be made beforehand. What Commander Perrin, with a fine sense of delicacy, calls "keeping the Press under control," really means keeping the public in ignorance, or only half informed. The Press knows its work quite as well as Commander Perrin knows his, and it only asks for reasonably-adequate facilities with which to fulfil it.

It must be borne in mind that the rule keeping photographers off the course operates as much for the safety of the Press photographers themselves as for anyone. It is probably quite true, as stated, that "the Press knows its work as well as Commander Perrin." But appalling ignorance as to the habits and manners of aeroplanes has been shown from time to time by newspaper men, even by Special Aeronautical Correspondents, in writing as well as in deed. And the safety of machines and pilots is the most important of all things.

The Royal Aero Club officials might, however, exercise their judgment. There are certain press photographers, such for example as Mr. Birch and Mr. Muggeridge, who from long association with aircraft in the flying Services during the War and since, know the habits of aeroplanes as well as do some, and a great deal better than most, of the Club officials who rule the meetings.

Incidentally, while on the subject of the Club and the Press, one would suggest to the Club that the representatives of the daily press should be provided with details of interesting and amusing incidents which have occurred from time to time as well as merely with cold figures. At the King's Cup Race one found that there was a constant stream of incidents that never reached the pressmen until given them by members of the staff of this paper and other unofficial people.

G. D.

The Society of British Aircraft Constructors, Limited.

Mr. T. O. M. Sopwith, C.B.E. (H. G. Hawker Engineering Co. Ltd.), has been re-elected Chairman of the S.B.A.C. for the year 1925-26. Captain P. D. Acland (Vickers Ltd.), and Mr. H. T. Vane, C.B.E. (D. Napier and Son, Ltd.), have been re-elected Vice Chairmen.

Sq. Com. James Bird (Supermarine Aviation Works, Ltd.), has been re-elected Honorary Treasurer of the Society.

The following comprise the Committee of Management:—Mr. T. O. M. Sopwith, C.B.E. (Chairman), H. G. Hawker Engineering Co. Ltd.; Capt. P. D. Acland (Vice-Chairman), Vickers Ltd.; Mr. H. T. Vane, C.B.E. (Vice-Chairman), D. Napier and Son, Ltd.; Sq. Com. James Bird (Hon. Treasurer), The Supermarine Aviation Works, Ltd.; Mr. R. Blackburn, Blackburn Aeroplane and Motor Co. Ltd.; Mr. R. A. Bruce, Westland Aircraft Works (Petters Ltd.); Mr. H. Burroughes, Gloucestershire Aircraft Co. Ltd.; Mr. A. E. L. Chorlton, C.B.E., Wm. Beardmore and Co. Ltd.; Mr. C. R. Fairey, M.B.E., The Fairey Aviation Co. Ltd.; Mr. H. G. ffiske, Boulton and Paul, Ltd.; Mr. Basil Johnson, Rolls-Royce Ltd.; Mr. John Lord, A. V. Roe and Co. Ltd.; Mr. F. Handley Page, Handley Page, Ltd.; Mr. E. B. Parker, Short Bros.; Mr. J. D. Siddeley, C.B.E., Armstrong-Siddeley Motors, Ltd.; Mr. C. C. Walker, De Havilland Aircraft Co. Ltd.; Sir Henry White-Smith, C.B.E., Bristol Aeroplane Co. Ltd.

Lieut. Simonet.

Great regret will be felt in this country and especially by those gathered at Lympne at the death of Lieut. Simonet, which occurred on Sunday at Vauville. Lieut. Simonet was taking part in the gliding contests now being held at Vauville. He had been in the air for more than eight hours when the machine suddenly crashed. It seems probable that he went to sleep or else fainted in the air.

Lieut. Simonet, who was a Belgian Army officer, took part in the first light aeroplane competitions at Lympne in 1923, at which he flew the Poncelet monoplane. He had a very likeable disposition, and was extremely popular at the meeting. He was a pilot of great ability, and on behalf of readers of this paper, one offers sincere sympathy to Belgium and to Belgian Aviation in this great loss.—G. D.

The Globe Trotters.

The Tokyo-London Flight.

The Times correspondent cabling from Tokyo on July 26, says:—

The two aeroplanes belonging to the *Asahi* newspaper, which are attempting to fly to London, left Yoyogi aerodrome near Tokyo at 9 a.m. on Saturday (July 25), and arrived at 11.30 a.m. at Osaka, where they remained, owing to carburettor trouble in Major Abe's aeroplane. They have been named Hatsukaze and Kochikaze and are piloted by Major Abe and Mr. Kawachi.

Great enthusiasm is shown in this the first Japanese long-distance flight, and large crowds assembled at the aerodrome to see the start. Their Imperial Highnesses Prince Kuni and Prince Yamashina were present. M. Kopp, the Soviet representative, delivered a speech. The airmen have been given many public entertainments in the past few days and were received last week by the Prince Regent.

The two aeroplanes used are Japanese-built Breguet biplanes, fitted with 400 h.p. Lorraine-Diétrich engines. One pilot employed by the *Ashai*, one military pilot, two mechanics, and one reporter form the crews. The *Asahi* has guaranteed £30,000 towards the cost of the journey to London, which is to be made via Siberia.

The Melbourne Tokyo Flight.

The Times correspondent, cabling from Sydney on July 25, says:—

The Marchese de Pinedo, who is flying from Melbourne to Tokyo, made another unsuccessful attempt to-day to leave for Brisbane in the Savoia seaplane. He started this morning, but returned two hours later. Subsequently he made a second short flight, and had further engine trouble. He will not now leave for five days.

PERSONAL NOTICES.

Death.

HICHENS.—On June 30, at Quetta, India, Derek Baron, infant son of Xenia and Fitzgerald Hichens, R.A.F., aged seven months.

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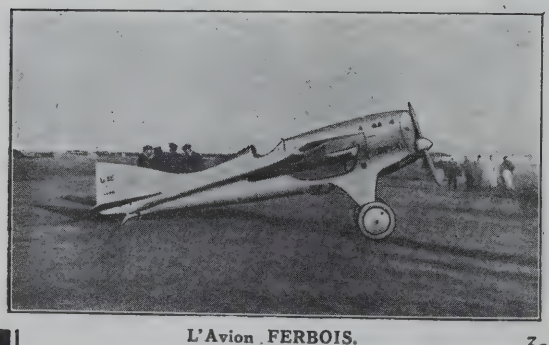
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PROGRESSIVE AUSTRALIA.



A LINE-OUT:—Australian light aeroplanes on the occasion of the New South Wales Aerial Derby on Jan. 8, 1925. From left to right these are: the Broadsmith B.4 (A.B.C. Scorpion), the Wackett Widgeon (Wackett Warbler engine), a D.H.53, the Broadsmith B.2 (1075 c.c. Anzani engine) another D.H.53 and an Avro 504K. The two 53s belong to the Controller of Civil Aviation and the Avro, which was used for giving refresher courses to pilots competing in the Light Aeroplane Competitions held from Nov. 29—Dec. 6, 1924, was loaned by the Defence Department.



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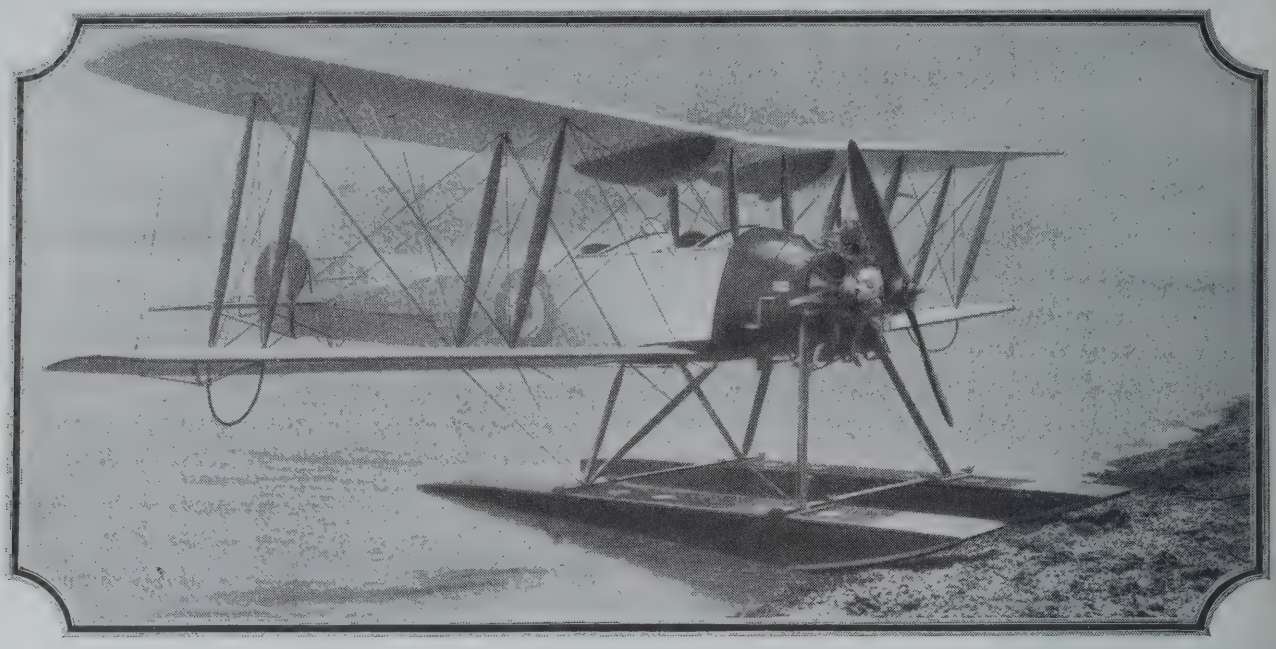
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ON THE LYMPNE MEETING.

PROS AND CONS.

Considered as a whole the Lympne Meeting held during the Bank Holiday week-end must be considered a success from the sporting point of view, though as a means of increasing popular interest in Aviation it was a failure. Most of the people directly concerned with flying were there, but the quantity of the Great British Public who took the trouble to go to the aerodrome was about equal to the number which would surround a village green to see a cricket match between the local squire's house-party and the indigenous inhabitants of the locality.

That so many private owners (all there are in England, in fact) and so many Trade firms should take the trouble to send or fly their machines to the extreme tip of English soil for such a meeting with such miniature prizes shows the fine sporting spirit which exists among those who aviate. But that the Royal Aero Club should ask a number of hard-working people to go to so much trouble and expense shows how little the Club understands the problem of promoting the Sport of Flying, for which purpose it ostensibly exists.

There is much to be said for the argument that Lympne Aerodrome, situated as it is on a hill-top, does afford a good view of a triangular course of some 12½ miles, and so provides a pleasing spectacle. But that argument is of little value if only a few hundreds of people go to see the spectacle provided. And, placed as it is in a corner of the coast, the neighbourhood only gives a quarter-circle of country from which to attract spectators, whereas an inland aerodrome, like Andover for example, has a full circle of inhabited area on which to draw.

The holiday-makers of Folkestone and Hythe and Dymchurch evidently did not think the Sport of Flying sufficiently attractive to tempt them from their beaches and movie-shows. And the bulk of the spectators were local rustics or car-owners, apart from those directly interested in flying who came from considerable distances.

As there was no air-lining on the Bank Holiday the meeting might just as well have been held at Croydon over a five or six mile course in the direction of Mitcham, or at Hendon over the Mill Hill and Edgware course, both of which offer decent landing ground. In either case the crowd would have been bigger than it was at Lympne, and quite a number of people in the Trade would have been saved big hotel-bills and travelling expenses. But of course some few officials would have been deprived of a seaside holiday at the Club's expense. Perhaps the Trade may find that expense can be saved another year by subscribing to an "Officials' Fresh Air Fund" with which to give them a week by the sea, so that they may regain energy and clear their brains and then organise a financially successful flying meeting near London.

That being the state of affairs there is the more credit due to those who supported the meeting either as competitors or spectators. For the individual it was quite a cheery little gathering. Those who went to Lympne met a number of friends. They saw some very pretty flying. And if they were staying in the neighbourhood they spent some remarkably cheery evenings—in spite of the ultra-pious local legislation of the Folkestone district. But as the great Annual Event of the Royal Aero Club's year, the Club's one opportunity of justifying its existence as the body which is supposed to propagate and govern the Sport of Flying, it was a dire wash-out.

The preliminary symptoms of the Meeting are now handed over to Mr. Geoffrey Dorman :—

PRELYMPNEINARIES.

As is usual on arriving at air races the first person to be encountered was Mr. Jerry Shaw, who had arrived down there accompanied by his A.D.C., Mr. Mercer, to see that everybody who had any chance of winning should know that there was such a fuel as Shell spirit. Mr. Shaw always seems to arrive first on the scene and as fourteen out of fifteen races were won on Shell spirit he seems to have done pretty good work.

On Thursday morning it was raining most of the time but there was plenty of work going on in the sheds. This year the hangar nearest to the road was used, as the one which was occupied last year was given over to the R.A.F.

Mr. James' A.N.E.C. was the first machine to arrive and on Thursday morning he had it assembled and took it out into the aerodrome, but an extra heavy downpour made him retire quickly to the shed. Mr. Hinkler had flown over from Hamble the previous evening in the Avro-Lynx and besides these two machines the two Parnall Pixies and the Bristol Brownie and the Beardmore Wee Bee were all in course of erection. News was also received that the Pander had left Amsterdam.

The wind during the day was gradually strengthening and later on it was heard that the Pander had had to land at Ostende for petrol. Here it stayed for the rest of the day and flew on to St. Inglevert the next day.

Lord Edward Grosvenor was early on the scene and staked out a corner claim for the D.H.53 belonging to the Seven Aero Club, of which he is the leading member. He also hung up there a banner in orange and black which was the insignia of the Seven Aero Club. As the posters of THE AEROPLANE, which were much in evidence, were also orange and black, everybody thought that the banner was part of THE AEROPLANE'S advertising scheme and therefore one would like to thank Lord Edward Grosvenor and the Seven Aero Club very much for their help.

As the weather did not show very many signs of improving we all returned to the hotel for a game of bridge, the result



THE TRIPLE WINNER.—Flight Lieutenant Chick (with cap) and the R.A.E. Hurricane (Bristol Cherub engine).

of which will probably lead to an increase in the price of Shell spirit.

After lunch Mr. James tried to get off but as his engine was 400 revs. down he had great difficulty in getting off at all, and as there was little chance of his clearing the trees he put the machine down again in the aerodrome, and with the help of Mr. Cook tried to coax the extra revs. out of the engine. Later on in the evening he was up again, and Mr. Kingwill was also testing the Wee Bee, on which he and Mr. Baxter had been working all day.

Mr. Shaw was busy during the evening evolving "Shell Slogans," such as "We do not pay you to use Shell but it will pay you to do so." One knows definitely that the Cranwell Club and the R.A.E. Club were offered rewards by petrol companies other than Shell to use their spirit. The fact that all except one of the events was won on Shell rather shows that people thought that Shell at 1s. 10d. per gallon was better than other petrol for nothing plus a bonus. There is much truth in the saying that what costs nothing is worth about that.

On Friday morning the weather was again bad, and there was such heavy rain and mist that it was impossible to see across the aerodrome. It started to clear a bit after lunch.

About 15.00 hrs. Sq. Ldr. and Mrs. Haig, accompanied by their Sealyham arrived, and Sq. Ldr. Haig at once took out the Pixie III for a test during which he did a loop or two and one or two other stunts to the delight of the crowd which had assembled.

Mr. James and Mr. Uwins were also testing their machines and this time the A.N.E.C. was fortunately going better, and Mr. James made quite a long flight.

News was received from Croydon that Mr. Cyril Holmes and Mr. Campbell, who had flown up from Bristol earlier in the day, had both left for Lympne on the Bristol Lucifer and the Bristol Bloodhound respectively. Mr. Campbell arrived soon after the news had come through, and not far behind him was Mr. Holmes, who, on alighting, seemed to have donned the uniform of a mediæval halberdier, with leather jerkin and baggy knee-breeches complete.

Later in the evening Mr. Bert Hinkler arrived on the Avro Avis from Hamble. He ran out of petrol about five miles from the aerodrome and had to land in a field where he bought some petrol from a neighbouring garage, took off again, and arrived at Lympne. At about 9.30 Mr. Rapallier on the Pander arrived in the dark.

A number of old friends were to be seen among the various machines present. The Beardmore Wee Bee won the two-seated light aeroplane speed race, and once again showed itself to be a thoroughly efficient machine.

The Hawker Cygnet which was then the runner-up to the Wee Bee, this year covered itself with glory by winning the International Handicap. Its engine must be vastly improved since last vear, because it did two heats of 200 miles without a splutter and without a broken valve. It was not so fast as it was last year as it had been fitted with a much larger airscrew, and the engine was running considerably slower which possibly accounted for its increased reliability.

Mr. J. Lankester Parker was much in evidence on Friday and Saturday, on the Short Satellite with a metal fuselage. He had extremely hard luck in the first event as his engine was so damaged that it was impossible to repair it. Unfortunately it was only decided to enter the machine just before the race and the Bristol Company had no time to bring his Cherub up to date, so it was the same as it was last year.

The Bristol Brownie was also a familiar sight, and Mr. Uwins at his first take-off seemed to think that the piece of string between two flags over which he used to leap last year was still there, judging from the manner of his take-off.—G. D.

BEFORE THE EVENTS.

Mr. Dorman having had his say we will now return to our muttons.

There is an old proverb which says, "Happy is the country which has no history." Similarly one may say "Happy is the flying day which has no incidents." Saturday, Aug. 1, the first day of the Meeting at Lympne, was distinctly a day devoid of incident. In fact it might be called hopelessly dull but for the inevitable humours which seem to be inseparable from flying and those who fly.

The racing on Saturday was confined for some unexplained reason entirely to those particularly useless aircraft commonly known as light aeroplanes. Why anybody should imagine that any useful purpose is served, other than that of scientific experiment, by an abnormally light aeroplane fitted with an engine composed of two reciprocating ginger-beer bottles one has yet to discover. But one must admit that some of those small engines did astonishingly good work.

As scientific toys, analagous to those miniature railways with which some few rich men disfigure their gardens, they may be entertaining and certainly they are amusing to watch but considered as vehicles of transport they are about as much use as a Shetland pony compared with a useful Cob.

One big manufacturer, when asked why he had not built a light aeroplane, replied that he was getting too old to play with paper darts.

One can only imagine that Saturday's performance was confined to light aeroplanes so as to save the proprietors of the larger aeroplanes the expense of keeping them and their mechanics at Lympne for an extra two days.

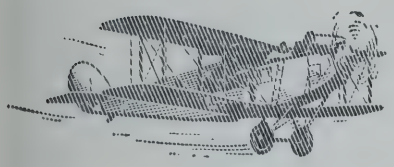
Arrivals.

Almost all the machines entered for Saturday's racing arrived on Friday in spite of the appalling weather. All of them came by road, with the exception of the Avro Avis which Mr. Hinkler flew up from Southampton. Which shows what the constructors of the machines think of the light aeroplane as a cross-country conveyance.



AT THE START.—The Beardmore Wee Bee and the Hawker Cygnet (Bristol Cherub engines) starting in the two-seater scratch race.

For Peace or War the Napier is indispensable!



For speed, reliability and all-round efficiency the Napier has proved itself supreme.

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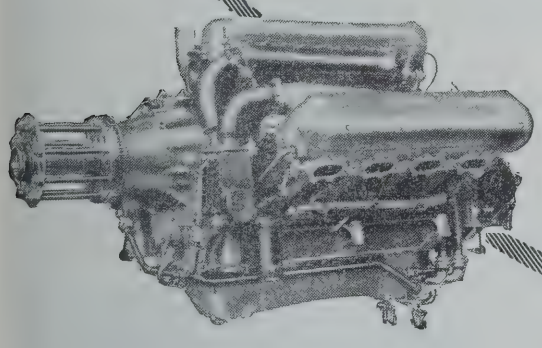
On commercial service Napiers have proved their reliability by the continuous service they give—one engine in the employ of Imperial Airways has covered over 170,000 miles (1,700 hours' flying).

For racing, no other British aero engine has such a record of success. Three successive Aerial Derbys and the Schneider Trophy are some of the achievements of Napier engined machines.

The Napier is the only British engine to have flown at the rate of over 211 m.p.h.

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The last three Aerial Derbys have been won by Napier engined Gloster machines. In 1923 over the circular course of 200 miles a speed of 192.4 m.p.h. was maintained.

Some of the bigger machines arrived by air, notably the Bristol Bloodhound (Jupiter engine) and the Bristol School machine (Lucifer engine). Mr. King's aged Sopwith Gnu came in during the evening accompanied by another machine which caused quite a lot of discussion because nobdy could tell what it was. It was unmistakably a Sopwith but it had a large Anzani engine in the nose. It was in fact the one and only Sopwith Grasshopper, a machine which, in spite of the habits of its entomological namesake, failed to propagate its species.

Those who arrived by air, and road, passed through heavy rainstorms, and the visibility generally was very bad. About the best definition of bad visibility one has heard come from Mr. Uwins, the Bristol pilot, who, endeavouring to tell an inquiring but ignorant person precisely what bad visibility meant, explained it as, "When you try to see as far as you can see you see that you can't see very far." That definition might very well go into the Meteorological Department's handbook.

Social Amenities.

One of the jests among the early arrivals concerned a compartment of one of the big aerodrome sheds, which the Committee and Secretary of the Royal Aero Club coveted as an office. When the R.Ae.C. officials arrived they found the door of this particular office bearing a large black and white sign on which was painted "The Royal Aeronautical Society." Now the Royal Aeronautical Society has been in a state of peaceful coma so long that this apparition struck the Aero Club people all of a heap, so-to-speak. Such unexpected activity seemed, as the man in "Miss Hook of Holland" said about the profession of putting corks into bottles, so unnatural.

Inquiry produced the information, possibly erroneous, that somebody at the Royal Aeronautical Society had been struck by the brilliant idea that these light aeroplanes are of some scientific value and therefore come within the purview, sphere of influence, or what-not, of our oldest, not to say senile, aeronautical association. Consequently the Aeronautical Society—which, on account of its extreme age (it is the oldest society of its kind in the World having been founded in 1860) and because, like the House of Peers in Iolanthe, it "Does nothing in particular and does it very well," is in high favour with the Air Ministry—was given permission to take possession of an office at Lympne. Ostensibly of course it was a place where its members visiting Lympne might assemble, but presumably the basic intention was to show to the assembled thousands of visitors that the Society does still exist.

However, when the Royal Aero Club officials arrived they could find nothing pertaining to the R.Ae.S. excepting the notice board. There was no representative of the Society and there was no literature connected with it. And none of the Civil Air Traffic officials knew anything about the affair. In fact nobody seemed to know of the Society's existence. And the general opinion seemed to be that the notice board had been wished there by some psychic person in Albermarle Street, if the Society's offices are still there.

Therefore the ever-practical Mr. Perrin ruthlessly removed the notice board and took possession of the office, which was certainly turned to useful account during the ensuing days.

The Imperial Air Way.

For those of us who arrived on the Friday, while there was nothing else particular do to, some entertainment was to be got out of inspecting 50 per cent. of the Fleet of Imperial Airways Ltd. which happened to have ceased operations at Lympne on that day or thereabouts. An exalted officer of the R.A.F. who was present seemed to derive quite an amount of amusement from it.

One of the Imperial Airways pilots explained lucidly that the I.A. Fleet now consists of This and That; This being the D.H.34 at Lympne and That being the other one which was still flying somewhere or other on that date. The trouble of the Management apparently is to discover which is This and which is That, because at any moment a trifle of engine trouble may cause That which is in the air to become This which is on the ground. And vice versa a successful little job of repair work may cause This which is on the ground to become That which is in the air, and so create Those.

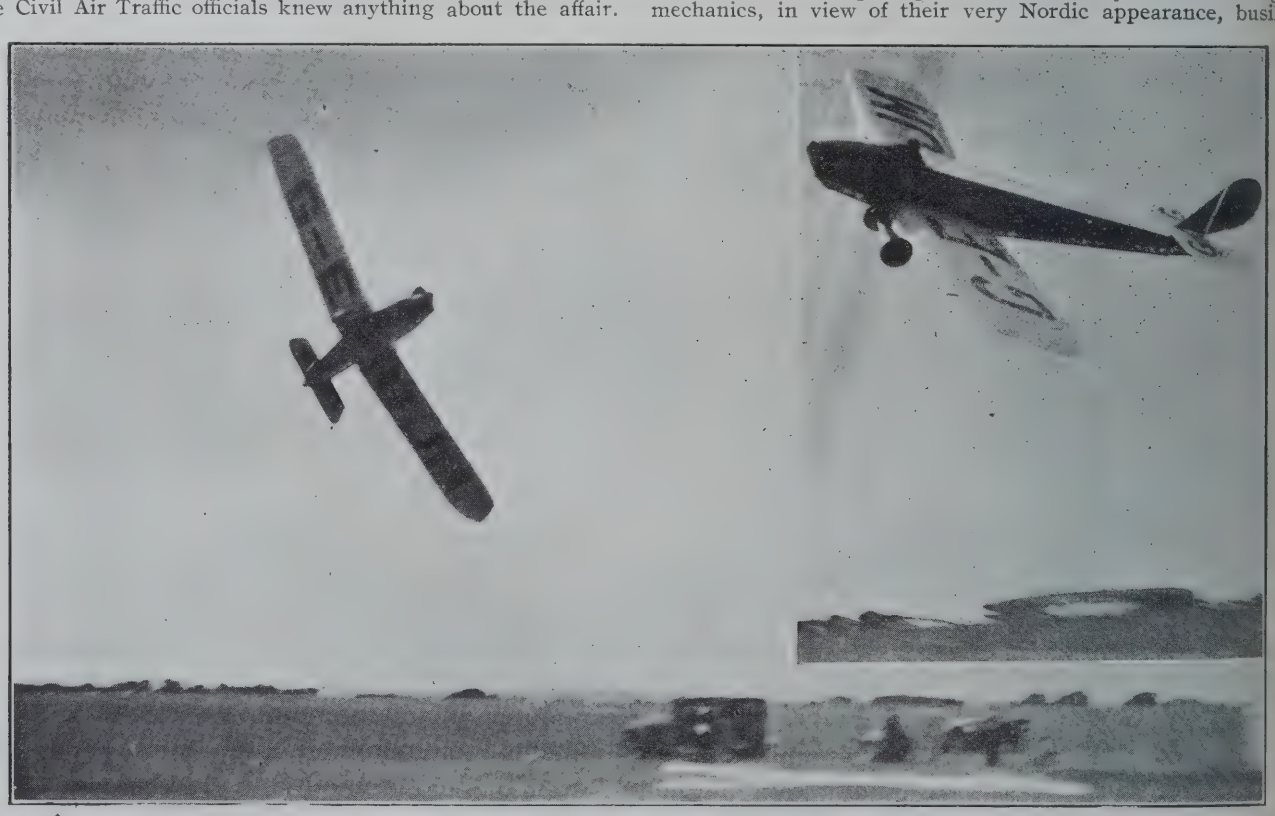
The eminently commercial Board of Directors of Imperial Airways must be frightfully worried at having to concentrate with their great business brains on deciding at board meetings which is This and which is That at the moment. No wonder the directors draw £500 a year apiece as fees, and no wonder the Great Big Man at the top, the push and go personality, is considered to be worth £5,000 per annum. The "This and That" puzzle must be more perturbing than many cross words.

Minor Mishaps.

When one said that Saturday's performance was without incident one meant of course without any serious mishap, but of course minor mishaps were the rule rather than the exception. Such is the custom with light aeroplanes.

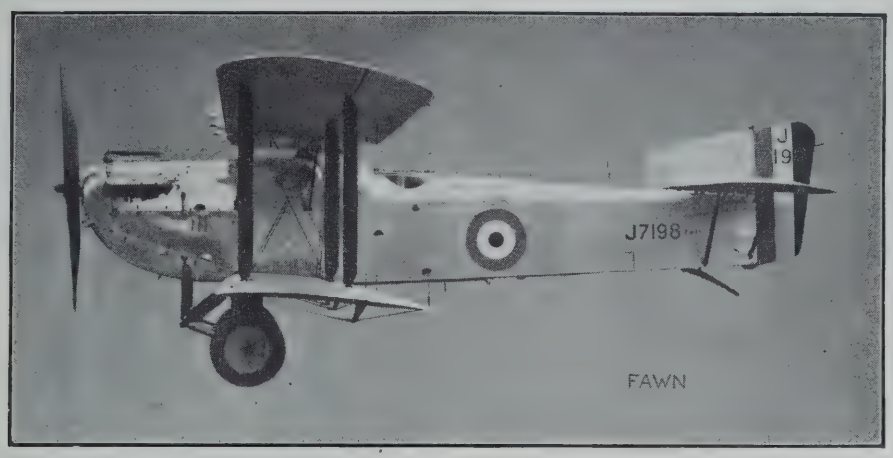
About the first happened to the Master of Sempill and the Pander Monoplane, the only foreign competitor, which had been flown over from St. Inglevert late on Friday evening by M. Rapallier. Col. Sempill took the machine out for test and after flying for a while found one of his shoes filling with a cold clammy liquid which he soon diagnosed as oil. Then he discovered that a flexible oil pipe had sprung a leak and that the highly efficient oil pump of the engine was delivering oil into his right shoe in pints from the tank, instead of putting it into the engine.

He landed promptly near the racecourse. When he arrived at the aerodrome he found Mr. Pander and his large crew of mechanics, or perhaps one should say crew of large mechanics, in view of their very Nordic appearance, busily



GETTING ROUND.—Studies of Mr. Uwins cornering on the Bristol Brownie with Cherub engine.

R·A·F· TYPES — Nº 2.



THE FAIREY FAWN

(Napier Lion Engine.)

The FAWN is a three-seat Army Reconnaissance machine which can be converted into a Day Bomber at a few moments notice.

In common with most FAIREY AIRCRAFT this machine is fitted with the FAIREY PATENT VARIABLE WING CAMBER GEAR.

Considerable quantities of these machines are in service with the ROYAL AIR FORCE: it will be recollected that it was FAIREY FAWNS which gave the remarkable display of formation flying at this year's R.A F. DISPLAY.

FAIREY AIRCRAFT

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searching for the machine, which Col. Sempill had taken out before they arrived on the aerodrome. Some quick repair work was done on the oil pipe and a few hours afterwards the machine was flown back to the aerodrome under its own power.

Incidentally Mr. Pander arrived somewhat later in the day in an automobile painted a beautiful brilliant crimson and drove it onto the aerodrome to reach the timekeeper's tent on the opposite side from the enclosure. As he did so he drew up alongside Mr. Perrin clad in his cinnamon suit of plus fours. Whereupon Col. McClean, one of the stewards of the Meeting, remarked to Mr. Perrin "I say, you rather clash with that car. You had better not stand by it." You see the stewards of a meeting are almost omnipotent and even secretaries have to consider their behests.

THE FIRST RACE.

The first race in the Meeting started promptly at 11.00 hours and as there were 14 entries it was divided into two heats. Flt. Lt. Soden's Austin Whippet did not appear and the first heat was won by Wing Cdr. Sholto Douglas on a D.H.53.

The second heat produced a very fine finish between Sq. Ldr. de Haga Haig on the Parnall Pixie III, with a Bristol geared Cherub engine, carrying Miss Housley as passenger, and Mr. Frank Courtney on a Parnall Pixie II, the single-seater with clipped wings. There were only about 25 yards between them longitudinally and about the same distance vertically, as Mr. Courtney finished almost touching the ground.

The final of the race, which looked like being a certainty for Sq. Ldr. Haig, was entirely upset by a rainstorm which smote the competitors heavily in the third lap.

Just after he had left the aerodrome on his last lap Sq. Ldr. Haig did a complete turn, and, as the next turning point was quite invisible owing to the rain, the spectators thought that he was deliberately keeping behind the storm, having come through it once, so as to give himself a chance of seeing the turning point. But after flying another mile or so he turned again and dived steeply in the direction of the race-course.

When the car which went to look for him arrived the aeroplane was found in a tiny field alongside the road the occupants having taken shelter in a neighbouring cottage till the worst of the rain was over. Sq. Ldr. Haig explained that an oil-pipe had broken and that the engine had seized up, having sprayed his passenger plentifully with oil—which at any rate served to make her shoes waterproof.

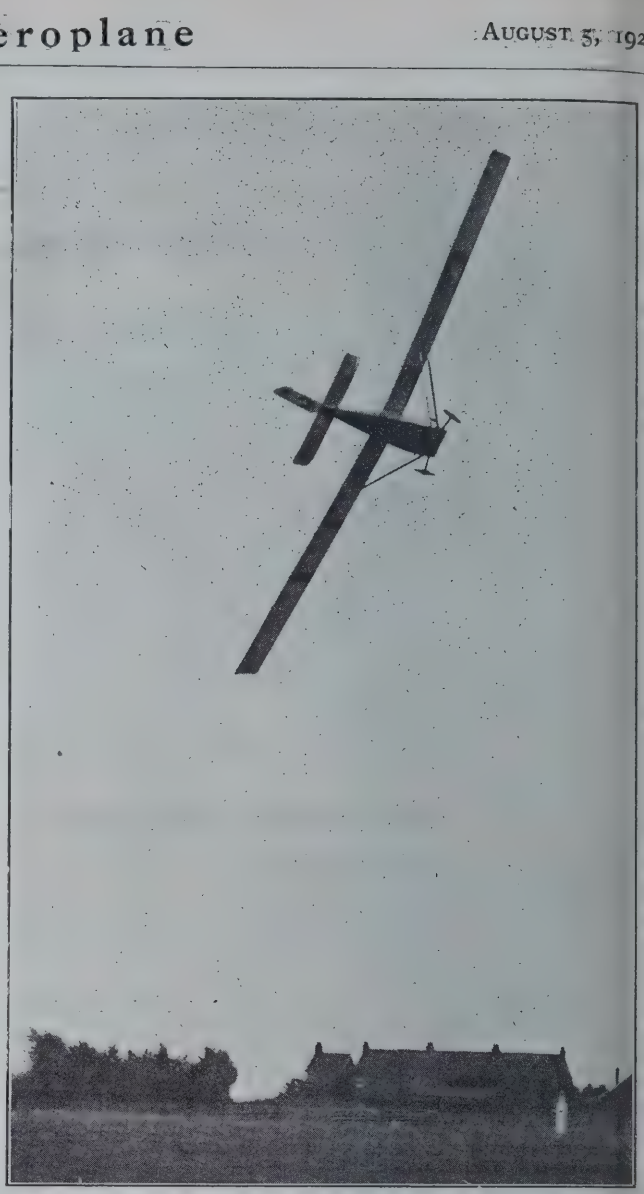
Phrases.

Later at the aerodrome some of the Bristol crowd were discussing the incident and one of them wondered what Sq. Ldr. Haig said when he found that his engine had seized. Another of them replied that he undoubtedly "preserved a blasphemous silence" out of respect for his passenger's feelings. He added that Mr. Mayer, the Bristol engine expert, would probably spend all that night "endeavouring to make the engine slide past itself again."

You will notice, of course, that the gift for turning out quaint phrases is part of the aeronautical temperament. One R.A.F. officer whose habit is to fly large twin-engined bombers, after watching Wing Cdr. Douglas and Mr. Uwins doing perfectly vertical turns round the mark on the aerodrome on their monoplanes, said that it gave him the "Yes! We have the No-Speed Blues" to see these things "doing vertical banks about three feet off the deck." And the wife of another pilot, seeing one of the competitors, a very experienced aviator, make the mistake of starting straight off on the course without rounding the starting point, remarked "Now that is most young of him."

The Winner.

Ultimately the final of the first event was won by Flt. Lt. Chick, the famous R.A.F. Rugger player, on the Hurricane, built and entered by the Royal Aircraft Establishment Aero



CORNERING.—Mr. Kingwill on the Beardmore Wee Be (Bristol Cherub engine).

Club and driven by a Bristol Cherub. The Hurricane ce tainly hurries a lot better this year than it did a year or tw ago but it is still a very ugly flying machine and one believe that it could be improved a lot by merely altering the shap of the fuselage behind the cockpit or even fitting it wit a fairing.

Mr. Frank Courtney was second on Pixie II and M Hinkler was third on the Avro Avis.

Mr. Courtney would have won but for the fact that th rain cut away the fabric covering of his airscrew and th loose fabric formed excellent air brakes on the tips of th blade so that his engine lost some hundreds of revolutio per minute although doing its level best. The airscrew the Hurricane would certainly not have lasted for anoth mile, as the leading edge was chewed away as if the ra had been at it and the tips were already showing signs splitting.

What would have been the effect on Mr. Haig's screw if th



THE TWO EXTREMES.—The Beardmore Wee Bee (all the way from Glasgow) flying over the course at Lympne, whic is almost the furthest South-East tip of England.

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oil pipe had not broken one cannot say but running slower on a geared engine it might not have suffered as much as the others did and he might have won in spite of the rain, if he had not been drowned on the way.

The one airscrew which was entirely unaffected by the rain was that on Mr. Hinkler's Avro Avis. This is a duralumin screw more or less like a Reed, which was made by the Avro Company themselves out of a strip of ordinary duralumin, cambered and twisted according to their own ideas.

The Second Race.

The second event was one for two-seaters, the starters being Mr. Lankester Parker on the Short cantilever monoplane, Mr. Kingwill on the Beardmore Wee Bee, and Flt. Lt. Bulman on the Hawker Cygnet biplane.

The Short machine has an absolutely symmetrical fuselage of duralumin and was nicknamed by the irreverant "Parker's Iron Balloon," because in side view it looks so exactly like a miniature Zeppelin. Like all the Short machines the workmanship is beautiful and it is a very interesting experiment, but it evidently needs more power than it has. Anyhow after a somewhat difficult get-off it descended in the course of the race and was brought home by road later. Ultimately the race was won by the Wee Bee with the Cygnet a very respectable second.

The Third Race.

The third race, which was a scratch race for single-seaters, was between Flt. Lt. Chick on the R.A.E. Hurricane, Flt. Lt. Comper on the Cranwell Light Aeroplane Club's parasol monoplane, Mr. Courtney on the Pixie II, Mr. James on the A.N.E.C. monoplane entered by Major Jack Savage, Wing Cdr. Sholto Douglas on the de Havilland 53 and Flg. Off. Boyes on Lord Edward Grosvenor's D.H.53.

Mr. Courtney got away with a terrific climbing turn inside the aerodrome but the Hurricane, C.L.A.3 and A.N.E.C. all went off round the sheds because owing to their high speed they needed too long a run to turn before reaching the sheds.

The A.N.E.C. has had her wings clipped and their camber increased since her last appearance. She is certainly very fast but she does not get off with any enthusiasm although when sitting on the ground she has a curiously ferocious aspect which makes her look as if she was just going to jump at you. Mr. James has evidently not forgotten how to fly for when once he got the machine in the air he took his corners with beautiful steadiness.

The Cranwell machine soon drew away from the others and won handsomely, much to the joy of everybody including all the Trade competitors, for they recognised what a thoroughly sporting effort the machine really is. Its speed is evidently about 100 m.p.hr. with a Bristol Cherub engine which gives about 30 h.p. It flies beautifully, but has a queer trick of flicking laterally when cornering or landing. This presumably is chiefly due to the pendulum effect of the underslung fuselage, which gives it a tendency to overdo its bank or to swing when corrected by the lateral controls. Morane parasols had the same trick.

This machine was built by a little syndicate of the personnel of the Boys' Wing at Cranwell, the head of which syndicate is Sq. Ldr. Thomas, one of the very earliest pre-war R.F.C. people. One first met him during the Army manœuvres when the "Red Army" Air Force of 18 machines under Major Higgins (now Air Vice-Marshal Sir John) were located at Lilbourne, near Rugby. With him are associated several officers of the Boys' Wing and about twenty Flight Serjeants and Civilian Instructors, who have built the machine in their spare time. The material for this machine has been bought out of the money promised to the Cranwell Light Aeroplane Club by the Air Ministry in recompense for last year's Cranwell machine which was crashed by an R.A.F. pilot when under test at Martlesham.

There is a certain amount of humour in the fact that two out of the three races in the day were won by machines built by private syndicates of officers and men in His Majesty's Service. Of course the Trade, busy as it is on manufacturing aeroplanes commercially for the Royal Air Force, cannot afford the time to play with mechanical toys. Which explains why there are no new Trade machines among the light



THE TURNING POINT.—Sq. Ldr. Haig and Miss Housley rounding the turning point on the aerodrome on the Parnall Pixie III.



CAUGHT IN THE ACT.—Mr. Courtney on the Parnall Pixie II doing one of his best turns and getting off.

"Bristol"

SUCCESSES AT LYMPNE

INTERNATIONAL LIGHT AEROPLANE HOLIDAY HANDICAP.

	AIRCRAFT	ENGINE.
FIRST	R.A.E. AERO CLUB MONOPLANE	**"BRISTOL" CHERUB**

INTERNATIONAL 2-SEATER LIGHT AEROPLANE SCRATCH SPEED RACE.

FIRST	 "WEE BEE I"	**"BRISTOL" CHERUB**

INTERNATIONAL SINGLE-STR LIGHT AEROPLANE SCRATCH SPEED RACE.

FIRST	CRANWELL PARASOL MONOPLANE	**"BRISTOL" CHERUB**

GREATEST HEIGHT IN 30 MINUTES.

FIRST	 "WEE BEE I" (8,180 feet)	**"BRISTOL" CHERUB**

GREATEST SPEED OVER 3 KMS.

FIRST	CRANWELL PARASOL MONOPLANE (139.69 Kms.)	**"BRISTOL" CHERUB**

GREATEST HEIGHT WITH ONE PASSENGER.

FIRST	 "WEE BEE I" (11,900 feet)	**"BRISTOL" CHERUB**

INTERNATIONAL HANDICAP.

SECOND	**"BRISTOL" LUCIFER SCHOOL MACHINE**	**"BRISTOL" LUCIFER**
THIRD	 **"BRISTOL" BROWNIE**	**"BRISTOL" CHERUB**

GROSVENOR CHALLENGE CUP HANDICAP.

FIRST	R.A.E. AERO CLUB MONOPLANE	**"BRISTOL" CHERUB**
SECOND	 **"BRISTOL" BROWNIE**	**"BRISTOL" CHERUB**
THIRD	CRANWELL PARASOL MONOPLANE	**"BRISTOL" CHERUB**
FOURTH	 WEE BEE I"....	**"BRISTOL" CHERUB**
FIFTH	 AVRO "AVIS"	**"BRISTOL" CHERUB**

PRIVATE OWNERS' HANDICAP.

FIRST	R.A.E. AERO CLUB MONOPLANE	**"BRISTOL" CHERUB**
THIRD	CRANWELL PARASOL MONOPLANE	**"BRISTOL" CHERUB**

THE BRISTOL AEROPLANE CO., LTD.,

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Telephone:—3906 Bristol. Telegrams:—Aviation, Bristol.

aeroplanes this year. But even so there is every reason to be glad that these very sporting little syndicates have scored in what is after all a purely sporting meeting, seeing that it has no spectacular or scientific or commercial value.

HORS CONCOURS.

After the racing was over Mr. Tait-Cox turned out on one of the Sky-Writing Company's S.E.s and showed the crowd from an altitude of a couple of hundred feet how smoke-writing is done, though owing to the high wind there was no possibility of doing any sky-writing.

Then Mr. Courtney came out on the Siskin and proceeded to do all the apparently impossible things which are done by first-class pilots in these days. He climbed vertically for a thousand feet or so. He came down entirely sideways to within 1,000 feet of the ground. He showed what a perfectly clean loop should be. He rolled off the top of his loops with precision. And he did a lot of other pretty things. But one noticed that he did not fly on his back to any extent. Altogether including his racing Mr. Courtney spent something over two hours in the air during the day.

The Parachute Descent advertised in the programme by the Calthorp firm did not come off. Mr. Youell, who was to carry the parachutist, spent most of the day pathetically searching for a lady with a parachute, but all his efforts only drew blank. An elderly female with a bundle, which looked like the week's washing of the C.A.T.O., under her arm indignantly repudiated the suggestion that she was a parachutiste, as did another who carried an abnormally large umbrella of the Sairey Gamp species.

SUNDAY'S SPORT.

Sunday being an "off day" naturally provided rather more sport and amusement than did the previous day. Which is what often happens when spontaneous efforts follow events run according to plan.

In the morning the weather was cold and windy and looked unpromising, but the afternoon turned fine and sunny with only a stiff breeze. Being the British Sabbath of course racing would have been thoroughly immoral. So, instead of having races, private matches were arranged. And various machines went for performance tests which will be duly certified by the Royal Aero Club.

Mr. Cobham had a match against Mr. Broad, both on D.H. Moths with A.D.C. Cirrus engines, starting level, over two circuits of the course; a distance of about 23 miles or 33-1/3 kilometres. Mr. Cobham won by about 100 yards.

Wing Cdr. Sholto Douglas on a D.H.53 flew against Sq. Ldr. Haig on the Parnall Pixie III, also starting level, over one circuit. Mr. Haig won by about a foot.

Then Mr. Haig on the Pixie III raced Flt. Lt. Chick on the R.A.E. Hurricane over one circuit, Mr. Haig having 43 seconds start. Mr. Chick won by a couple of yards by diving under Mr. Haig's tail.

Mr. Chick on the Hurricane flew against Mr. Broad on the Moth over one circuit, the Moth giving the Hurricane 43 seconds start. Mr. Broad won by about 50 yards. Which only shows that appearances are deceptive for the Moth apparently slips through the air very slowly with about as much noise as an owl; and the Hurricane hurtles along making a row like a machine-gun and apparently travelling very much faster than the Moth.

Mr. Cobham on a Moth flew against Mr. Broad on the colossal D.H.54, with a Rolls-Royce Condor, the big machine giving the little one 1 min. 49 sec. start in two circuits. And then the D.H.54 only won by a few yards. Of course there is really quite a big difference in their speeds but the D.H.54 went miles round at the turns, whereas the Moth turns in her own length.

In each of these matches—of course one must on no account call them races—each of the competitors put up a side stake and the Royal Aero Club added £10 to the amount. Which was quite in accord with the British Non-Conformist Conscience.

PERFORMANCE TESTS.

The performance tests were quite interesting. Mr. Comper on the Cranwell machine put up a speed of 139.69 kilometres per hour over a 3-kilometre course and Mr. Courtney on the Pixie II did 134.41 k.p.h.

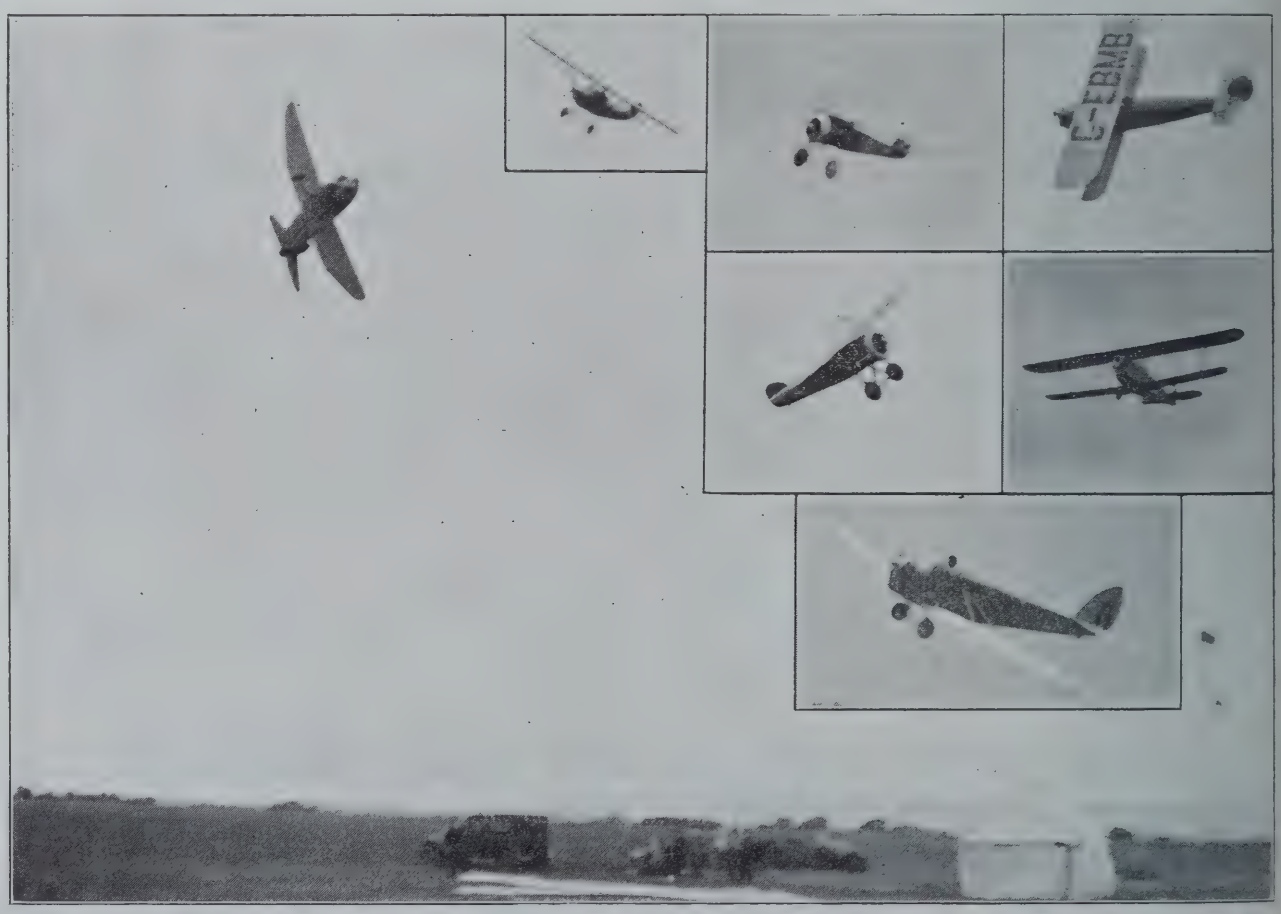
Over a 50-kilometre course Mr. Courtney on the Pixie II did 137.38 k.p.h., Mr. Comper on the Cranwell did 135.05 k.p.h. and Mr. James on the A.N.E.C. did 134.01 k.p.h.

In the height test for the best height reached in 30 minutes, Mr. Kingwill on the Beardmore monoplane reached 8,180 feet, Mr. Bulman on the Hawker Cygnet reached 6,450 feet, and M. Rapallier on the Pander reached 4,500.

Late in the afternoon Mr. Kingwill on the Beardmore went to see how high he could get irrespective of time, and with a passenger on board reached his ceiling at 11,900 feet. This is really a wonderful performance for a little machine and is distinctly a credit to the Bristol Cherub engine by which it is drawn. One is told that without a passenger Mr. Kingwill reached 13,000 feet on this machine at Renfrew.

Just before closing time Mr. Tait-Cox gave a little display on his old smoke-writing S.E. and Mr. Courtney on the Siskin put up one of the finest performances seen for a long time.

One thing which he did which astonished even the experi-



SOME ATTITUDES.—Mr. Courtney on Pixie II, Mr. Comper on the Cranwell, Mr. Phillips on the Sopwith Scooter, Mr. Bulman on the Hawker Cygnet, and Mr. Boyes on the D.H.53.

The D.H. Type 54

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FOURTEEN PASSENGER
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

enced pilots was a double turn while going vertically upwards. It might be described ether as double upward roll or as two turns of an upward spin. One has only seen this trick done once before and that was by a standard Service P.W.8 Curtiss belonging to the U.S. Army at Dayton.

Another effective trick of Mr. Courtney's was standing his machine on its tail and hanging on his airscrew like a helicopter. The late Harry Hawker used to do that occasionally during the War with either a Sopwith Snipe or a Camel, one forgets which at the moment. Altogether Mr. Courtney's was a very fine show.

Mr. Hinkler was busy all the afternoon taking up passengers, nearly all feminine, and drew a certain amount of chaff on himself by disappearing behind clouds with them. Mr. Youell on the A.D.C. Avro-type biplane with the Airdisco engine and Mr. Hinkler on the Avro-Lynx both gave some quite pretty displays of such stunting as may be done on an Avro, and Major Hemming flew the Moth very well for the first time, with his wife as passenger.

A Review of Commercial Aircraft.

After the official flying was over we were treated to a review of nearly all the Fleet of Imperial Airways Ltd., which had apparently been repaired, overhauled or renovated during the past few weeks. The Handley Page G-EBBG and the D.H.34 G-EBBT arrived in company from Cologne and landed for petrol, having taken 3¾ hours over the journey as far as Lympne. While they were still on the aerodrome the Vickers Vulcan came over apparently from Paris.

Some pretty strenuous work must have been done by the Management of Imperial Airways to have got so many machines on the service again, because one believes that, apart from all leg-pulling, it is a fact that one day last week Imperial Airways only had two machines which were able to fly.

One of the incidents of the afternoon was the departure in high dudgeon of Mr. Leslie Hamilton and his yellow Martinsyde which used to belong to Mr. Raynham. He intended to fly in the Private Owners' Race on Monday and had been given an airworthiness certificate but at the last moment was forbidden to fly because somebody had discovered a crack in the boss of his airscrew. He protested that he had been flying with that crack in his screw for years, which somewhat naturally drew the remark that there was all the more reason for expecting it to break at an early date. However, he went off to Croydon and borrowed a new airscrew from the A.D.C. Ltd. and returned in time for the Private Owners' Race next day.

There were several hundreds of people in the enclosure, and probably about as many "fence-guests" who grudged a shilling of their money hanging round the boundaries of the aerodrome.

Among the visitors were Sir Samuel Hoare, Secretary of State for Air, and Lady Maud Hoare, and Sir Philip Sassoon, Under-Secretary for Air.

BANK HOLIDAY.

Handicapping.

Monday's performance was really very like a race meeting so far as the events were concerned. For those who took the trouble to follow the progress of the machines in each race there was quite a lot of interest to be got out of the changes of position in each circuit of the course and although there were few close finishes the handicapping on the whole was very good indeed.

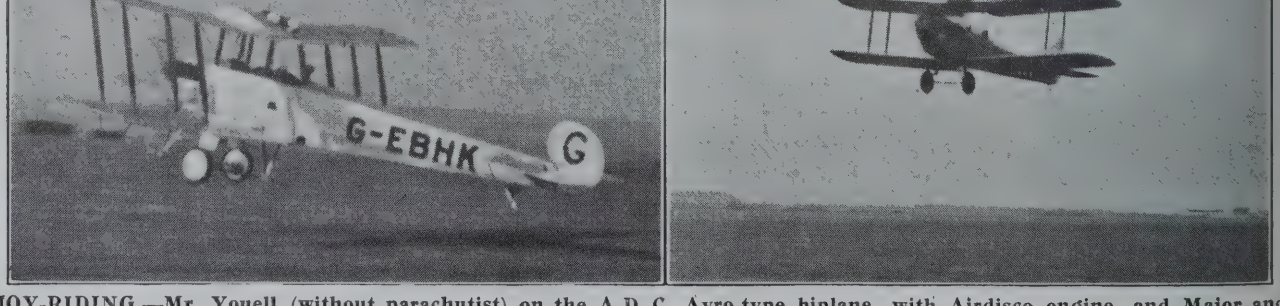
On this subject of handicapping there is a good deal to be said. Expert handicappers like Mr. Goodman Crouch and his assistants may know all that there is to know about a machine and its pilot and may allocate handicaps which in a flat calm would bring half-a-dozen machines across the finishing line in a row. But no handicapping on earth can produce a close finish if it is done on the supposition that the weather is going to be calm and there happens to be a strong wind blowing when the race is flown.

When the same lot of machines with the same pilots are competing in several races in one day, as they were at Lympne, the right way to do it is to handicap each race on the performances of the previous race. Of course, handicaps should not be altered between preliminary heats and finals of the same race. But after the final of a race, when the handicappers have seen what the pilots and machines can do in the heats and the final and under the weather conditions prevailing at the time, then they should handicap the machines over again for the next race.

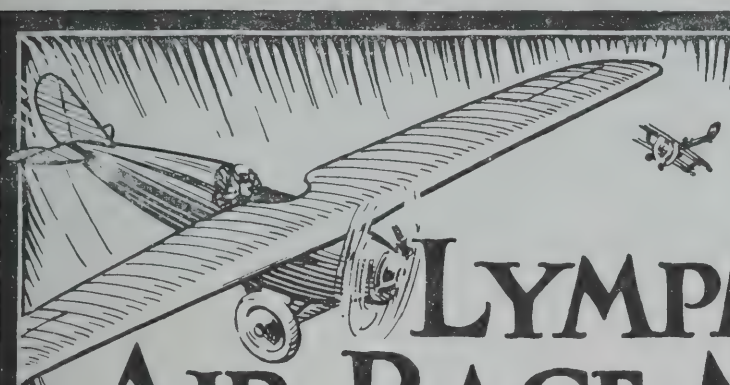
Some such proposal was made after the finish of the International Handicap on Monday in the hopes of producing a close finish in the Grosvenor Cup Race, but the Stewards of the Meeting did not approve the suggestion as there was no R.Ae.C. rule to cover it. The consequence was that the handicaps made the previous night were allowed to stand, with the result that, although the two fastest machines and one of the long handicap machines did finish fairly close to-



ANOTHER LITTLE AVRO.—Mr. Bert Hinkler on the Avro Avis with Cherub engine.



JOY-RIDING.—Mr. Youell (without parachutist) on the A.D.C. Avro-type biplane, with Airdisco engine and Major and Mrs. Hemming on the D.H. Moth, with Cirrus engine.



LYMPNE AIR RACE MEETING

August 1st—3rd, 1925.

The Winners of every race used CASTROL !

INTERNATIONAL HANDICAP.
FIRST. Flt.-Lieut. P W.S. Bulman, M.C., A.F.C Sopwith Hawker Cygnet
—using Wakefield CASTROL Motor Oil.

GROSVENOR CHALLENGE CUP HANDICAP.
FIRST. Flt.-Lieut. J. S. Chick..... R.A.E. Club Monoplane
—using Wakefield CASTROL Motor Oil.

LIGHT AEROPLANE HOLIDAY HANDICAP.
FIRST. Flt.-Lieut. J. S. Chick..... R.A.E. Club Monoplane
—using Wakefield CASTROL Motor Oil.

Two-Seater LIGHT AEROPLANE SCRATCH RACE.
FIRST. Mr. A. N. Kingwill..... "Wee Bee"
—using Wakefield CASTROL Motor Oil.

Single-Seater LIGHT AEROPLANE SCRATCH RACE.
FIRST. Flt.-Lieut. N. Comper..... C.L.A.3. Parasol Monoplane
—using Wakefield CASTROL Motor Oil.

PRIVATE OWNERS' HANDICAP.
FIRST. Flt.-Lieut. J. S. Chick..... R.A.E. Club Monoplane
—using Wakefield CASTROL Motor Oil.

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"ENTERPRISE OF MARTIAL KIND."—Flt. Lt. N. Comper on the C.L.A.3., built by the Cranwell Light Aeroplane Club, composed of personnel of the Boys' Wing at Cranwell.

gether, the rest of the field were strung out all round the course long before the final lap.

As a matter of fact the placings for the Grosvenor Cup were not affected very much by the handicapping, because the two heats and the final earlier in the day had told so much on most of the engines that the field, in the racing sense, found itself very much in the field, in the agricultural sense. Most of the machines instead of being strung out round the course in the air found themselves in various and assorted positions on the ground.

Nevertheless one hopes that if and when the Royal Aero Club summons up sufficient energy to hold another race meeting, the Stewards, Committee or other Officials will approve the idea of handicapping each race according to the existing conditions. Of course, that means considerably more work for Mr. Goodman Crouch and his aides but one gathers that they are all quite prepared to undertake the extra work in the best interests of the sport of flying. For which sentiment they deserve everybody's thanks.

The International Handicap.

The first race on Monday was the International Handicap, open to all aeroplanes. The first heat was won by Mr. Bulman on the Hawker Cygnet with Mr. Cyril Holmes on the Bristol Lucifer School Machine second and Mr. T. W. Campbell on the Bristol Bloodhound third. The second heat was won by Mr. C. F. Uwins on the Bristol Brownie with a Cherub engine with Mr. Alan Cobham on a D.H. Moth second and Mr. Broad on another Moth a close third. The final was won by Mr. Bulman on the Hawker Cygnet with Mr. Cyril Holmes on the Bristol Lucifer second and Mr. Uwins on the Bristol Brownie third.

The International element in this race was provided by the Pander monoplane, the engine of which had given trouble after the incident of the oil-pipe. There was some argument about what was the cause of trouble, so to avoid any unpleasantness Colonel Sempill withdrew from his pilotage and left the machine entirely to M. Rapalliér. He did some pretty flying but was not in the first three in his heat so did not appear in the final.

One amusing incident in the race was the fact that Mr. Broad's male passenger was so air-sick in the first heat that a new passenger had to be found. A willing volunteer came forward in the person of Mrs. Geoffrey Dorman, who thoroughly enjoyed the race, and Mr. Cobham's somersault, although her pilot only managed to finish fourth.

The Grosvenor Cup Race.

The Grosvenor Cup produced a really fine race in spite of all the forced landings. It was won by Mr. Chick on the R.A.E. Hurricane with a Bristol Cherub engine, from somewhere near the scratch mark.

Incidentally, one desires here and now to apologise publicly not only to Mr. Chick but to the R.A.E. Club for one's own carelessness in obstructing the start of the Hurricane. After so many years of experience one ought to have known better. But familiarity breeds contempt and one admits to momentary carelessness. Happily the threatened collision did not take place or somebody else would certainly have won the coveted Cup and the accompanying £190, and one would inevitably have been anathemised, even to the grave, for what would have looked like an exhibition of extreme animosity to the R.A.E. and all its works. One is delighted to be able to record that in three days the Hurricane won over £300 in prizes, so that the Club will now be able to build a new and better and, one hopes, a more eyeable machine.

Second place in the race went to Mr. Uwins on the Bristol Brownie, who flew an uncommonly fine course, taking his corners without an inch to spare. As it was he was only beaten by a matter of seconds.

The third place was taken by Mr. Comper on the Cranwell monoplane also with a Bristol Cherub. Fourth and fifth places were won by Mr. Kingwill on the Beardmore Wee Bee and Mr. Bert Hinkler on the Avro Avis also with Bristol Cherubs, so that the Cherub took the first five places, much to the joy of that hard-working engineer-designer Mr. Roy Fedden.

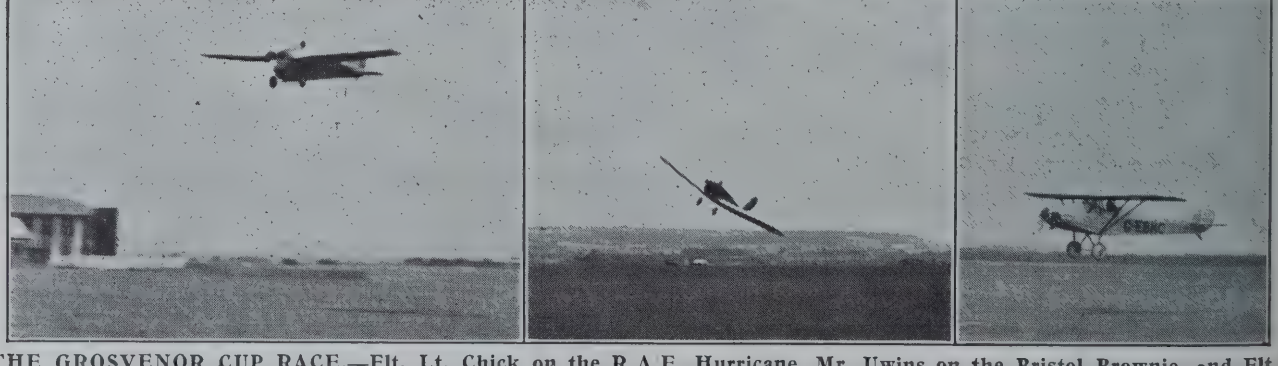
Mr. Courtney on Pixie II was the only other competitor to finish the course.

Minor Casualties.

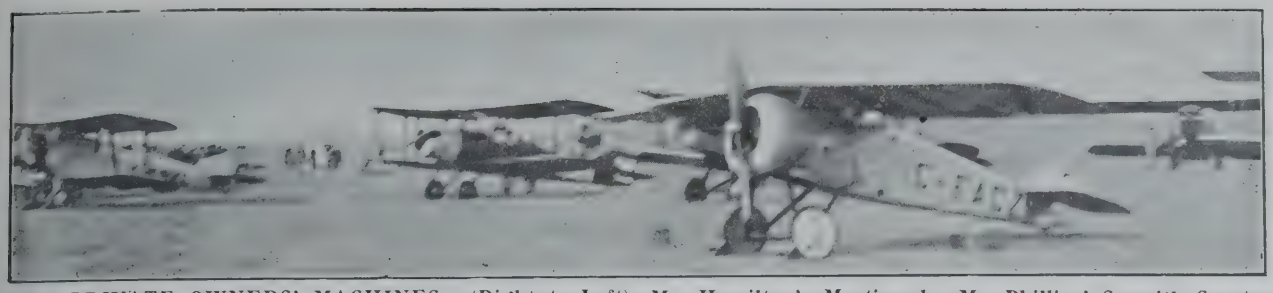
Col. Sempill landed out in the country owing to a choked petrol supply, Sq. Ldr. Haig came down because his engine gave up the ghost owing to damage done as the result of the broken oil pipe on Saturday. Mr. Boyes on Lord Edward Grosvenor's D.H.53 and Mr. Bulman on the Hawker Cygnet and Mr. James on the A.N.E.C. and Wing Cdr. Sholto Douglas on the D.H.53 all landed owing to propulsional trouble of some kind.

One ought to mention that Mr. Cobham had already come down owing to engine trouble in the final of the International Handicap. Apparently there was nothing whatever wrong with the engine itself. It simply stopped, and Mr. Cobham, like the experienced pilot he is, instead of trying to pick a landing ground from a height of about fifty feet and hitting something or stalling in doing so, carried straight on into the field which happened to be in front of him. Unfortunately this was entirely occupied by standing corn, with the result that the machine although it made a perfect landing got the corn wrapped round its axle and turned gracefully onto its back complete with Mr. St. Barbe, which removed it from the competition.

The Master of Sempill's engine stopped in almost exactly the same way in the Grosvenor Cup Race when he had his wife as a passenger. Fortunately they landed on ploughed ground without mishap. Mrs. Sempill, apparently not satisfied with having done a day's hard work as a volunteer clerk in the Aero Club office for most of the Meeting, proceeded



THE GROSVENOR CUP RACE.—Flt. Lt. Chick on the R.A.E. Hurricane, Mr. Uwins on the Bristol Brownie, and Flt. Lt. Comper on the Cranwell C.L.A.3—all with Bristol Cherub engines.



SOME PRIVATE OWNERS' MACHINES.—(Right to Left) Mr. King's Gnu; and the A.D.C.'s Mr. Hamilton's Martinsyde; Mr. Phillips' Sopwith Scooter; Martinsyde—a "Trade" machine.

with her husband to man-and-woman-handle the machine out of the ploughed field onto grass land, where, having removed some water and particles of brass from the carburettor, they started up the engine and arrived back in the aerodrome.

Sq. Ldr. Haig and Miss Housley had their second forced landing in the Grosvenor Cup Race after their landing on Saturday. They came down at Brabourne just past the second turning point, pretty well half-an-hour's run by car from the aerodrome. The village post office was of course shut, so they were directed to the vicarage where, after having telephoned news of their safety to the aerodrome, the vicar and his wife entertained them most hospitably to tea although they were having a tea party of their own in the garden, and thereafter the wife of the vicar exposited the church to them. Evidently the reverent gentleman and his wife bore no malice against aviators for competing (one must not call it racing) on the previous Sabbath.

The Private Owners.

The last race in the Meeting was the Private Owners' Handicap, which produced eight entrants, of whom two did not start.

Mr. Preston and the pilot, Flt. Lt. Pope, worked hard to get their B.E.2e sufficiently modified to earn an airworthiness certificate from the Air Ministry, but the last modification which necessitated practically rebuilding the main spars was rather more than could be done in the time. There is a certain humour in the modern Air Ministry official condemning as unairworthy the fine product of the wartime Royal Aircraft Factory which one remembers was manned, according to General Seely, by the brightest brains of Britain. The absence of the machine is to be regretted chiefly because of the trouble its owner had taken over it, but also because at this date it would have looked so funny.

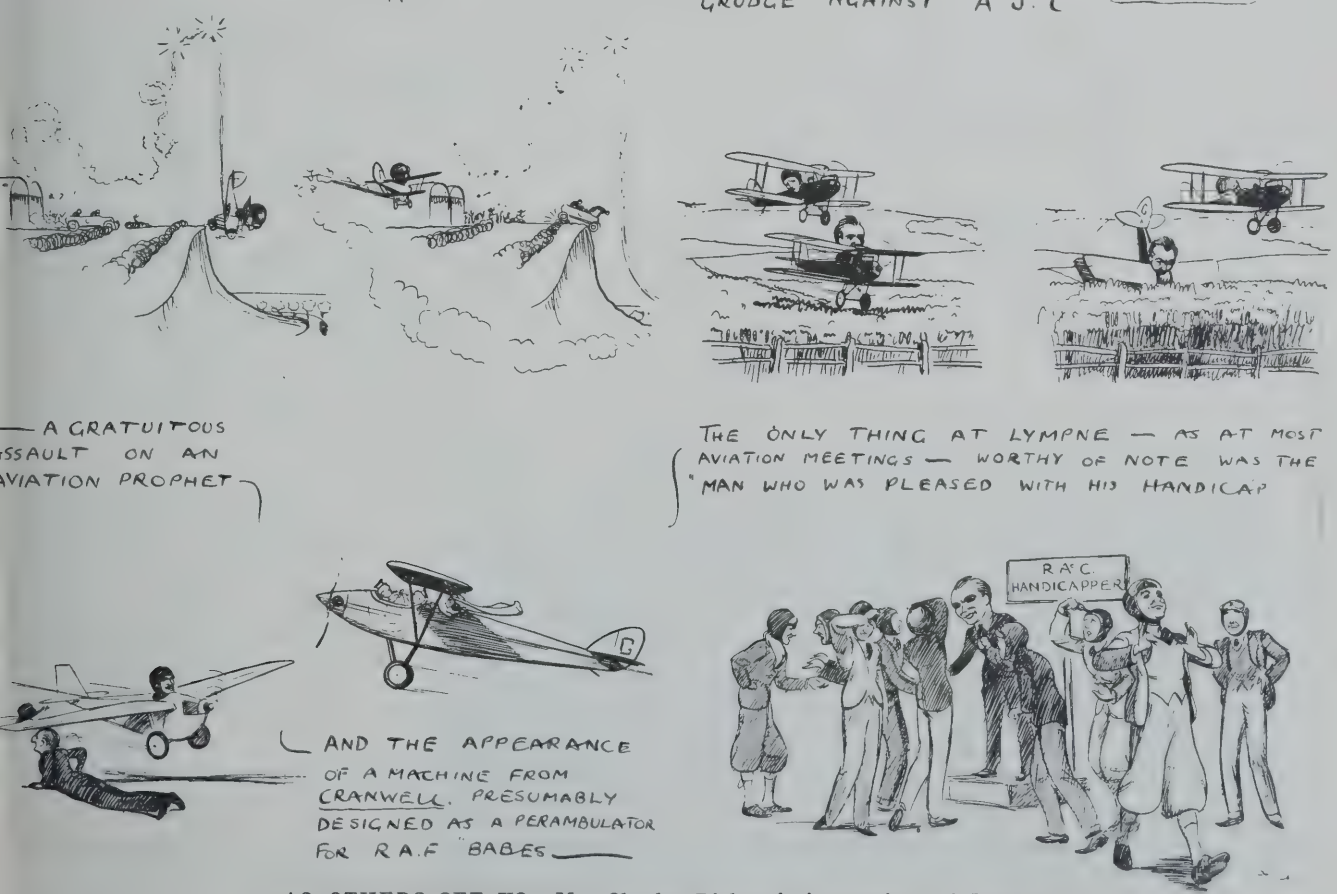
The other absentee was the D.H.53 with the A.B.C. Scorpion engine which should have been flown by Mr. Boyes. This machine was one of the victims of the Grosvenor Cup Race. It is the property of the Seven Light Aeroplane Club of Eastchurch, which is apparently composed of six R.A.F. officers and Lord Edward Grosvenor, who, somebody suggested, ought to make it Eight.

Comparisons are odious of course but somehow the gallant Seven excited one's sympathies more than did anybody else at the Meeting. They had quite a lot of engine trouble from the start. Then some time on Saturday or Sunday their engine, like Judas Iscariot, burst asunder in the midst, and the pilot came down with one of his two cylinders and a chunk of his crankcase swinging on the end of a flexible oil pipe and happily missing the wing struts. They had a spare engine but that also burst somehow, so they spent most of Sunday building one engine which revolved out of the two which had disintegrated. The combination never sounded nice but it did get a few circuits of the Grosvenor Cup Race before finally going to earth.

The other competitors in order of the programme were as follows :—

Mr. J. R. King was entered to fly his own Sopwith Gnu, the last remaining relative of the Gnu which Sq. Ldr. Longton flew in the Grosvenor Cup Race two years ago.

Flt. Lt. F. O. Soden, the first of the R.A.F.'s parachutists, entered his own Austin Whippet; a machine which although it was designed by Mr. Kenworthy (now of the A.D.C.) five or six years ago, is much nearer being a real light aeroplane



AS OTHERS SEE US.—Mr. Charles Dickson's impressions of Lympne.

than most of the most modern efforts in that direction all over the World. And of course its all-steel construction puts it right into the most modern class.

Mr. Leslie Hamilton, R.A.F., had entered his own F.6 Martinsyde, the bilious yellow and black machine which used to belong to Mr. Fred Raynham. He took all the trouble to fly to Croydon and back to fetch a new airscrew to replace the one condemned by the Aero Club, and he had hard luck in not being placed in any race.

Mr. Cecil Clayton had entered the Sopwith Scooter parasol monoplane which used to belong to the late Harry Hawker. Its pilot, Mr. J. P. C. Phillips, is one of the most persistent aviators in this country. Owing to having a defective eye he was of course turned down by the R.A.F. when he tried to join on leaving school a few years ago but such was his keenness on aviation that he managed to learn to fly and since then has always succeeded in having something to fly. Naturally he cannot get a passenger-carrying licence and consequently nearly all his flying has been done on single-seaters such as the little Koolhoven B.A.T. and the Austin Whippet. Constantly flying machines of curious and diverse design he has developed into a really first-class pilot.

The Cranwell Light Aeroplane Club had entered the C.L.A.3 monoplane with Flt. Lt. Comper as pilot. This machine had already distinguished itself and by Monday had come to be regarded as quite the outstanding success of the Meeting.

Doctor Whitehead Reid of Canterbury had entered his old S.E.5a with the 80 h.p. Renault engine on which he goes touring or visiting his patients with delightful impartiality.

And finally the R.A.E. Aero Club had entered the Hurricane to be flown by Flt. Lt. Chick.

In the race itself, which was over four circuits of the course, Flt. Lt. Chick won, with Flt. Lt. Soden second and Dr. Whitehead Reid third. It was a thoroughly sporting race but it struck me as a trifle pathetic that, barring what one might call the syndicate private owners, there was not a solitary entrant who could afford to buy and maintain a modern aeroplane. The youngest of all the privately owned machines, namely the Sopwith Gnu and the Austin Whippet, were built only just after the outbreak of peace. The Sopwith Scooter was merely a monoplane wing on top of a Camel fuselage and is therefore of wartime vintage. The S.E. and the Martinsyde are fairly late wartime types and the B.E.2.E. dates back to 1915. Such is the fate of the sport of flying in this country. All the more credit therefore to those good sportsmen, none of them rich men, who do manage to maintain private aeroplanes.

The End of the Day.

After the race Mr. Courtney gave another of his startling exhibitions of aerobatics. One can only say that it was up to his best form. Pretty well everything that can be said about Mr. Courtney's flying has already been said. But one would like to see him some day on a lighter and handier machine of less power, for these big high-speed fighters, although they are eminently fitted for their particular jobs, are really not as pretty to watch at this particular game as were some of the older machines like the Koolhoven B.A.T. and the Sopwith Camel.

Altogether the Meeting was, as one has said, quite entertaining to those of us who are on the inside of aviation, though it must have been a trifle dull to the spectators, seeing that the turning point was right away at the far side of the aerodrome so that the machines were only seen at a distance. There may have been good reason for putting the turning point where it was, but personally one thinks it would have been better to have had it in such a position that the machines would fly up to the turn close to the spectators, even though they had to pass over the heads of the crowd to reach it.

The get-off, of course, depends entirely on the direction of the wind. But the turning point might very well be close to the enclosure, as it used to be at Croydon and Hendon. People do like to have a close-up view of the machines when turning.

Apropos the turning point, splendid work was done by the Verey wireless people, a private firm who rigged up transmitting and receiving sets at each of the turning points and so kept each point in constant communication with the others. They were 100 per cent. efficient and most reliable in every way.

Weather Notes.

On the whole the weather was kind although there were one or two showers. On this subject somebody recalled a good story of the King's Cup Race. Apparently the official in control at Glasgow was unable to obtain any information about what was happening at the Harrogate and Newcastle controls and it is alleged that he sent Croydon H.Q. a telegram reading "Received weather reports from Panama, the Azores, Cape Breton, Buenos Aires, and New York; why the devil can't we get one from Harrogate?"

There were times when rain obscured the landscape in the direction of the far away turning points but the one feature of the landscape which never disappeared was Mr. Harold Perrin's cinnamon suit. One R.A.F. officer alleged that the costume of Mr. Bennett-Baggs must have been reaped from the same moose or buffalo as Mr. Perrin's. But when the two were paraded together at tea-time there was no doubt about which was the more *voyante*. The consensus of opinion among the judges seemed to be that although in silhouette against the light Mr. Baggs might be the more prominent there was no doubt that with the light shining on it Mr. Perrin's had the greater visibility. One of the officials urged in defence that the latter facilitated finding the Secretary of the Royal Aero Club when he was needed, and that he could be seen even when he could not be heard. Anyhow the discussion added to the charm of the proceedings.

Of course these cheery little family gatherings are very pleasant for those of us who are on the inside but they add little to the progress of aviation and on the whole one is glad that after this issue of The Aeroplane it will be possible to return to the serious consideration of practical flying.—

C. G. G.

AFTERTHOUGHTS.

Writing after the event one would like to say that there is one point on which everybody agreed, namely, that all the races were far too long to be interesting. It would be much better to make the average type of race only two circuits in length and for the heats only one lap, but why it was necessary to have heats at all in the handicap events was extremely difficult to see.

Also the organisation for letting the public know what was happening simply did not exist. There was a small event board which was placed so low on the ground that only the few people in the front rows could read it, and to the general public who did not know the performers intimately the whole affair must have been inconceivably dull though to those on the inside it was really extremely interesting.

On Saturday morning the D.H.54 arrived from Stag Lane and during the scratch speed race Mr. Hubert Broad took up several passengers, including oneself, for a trip, during which he went round the course. Immediately below us was Mr. Courtney on the Pixie, in front of him by about 200 yards was the Cranwell, and just behind the Pixie was the A.N.E.C. It was a very curious sight to follow these machines round, because we more or less kept station with the Pixie the whole time and so got a very good view of the race.

The 54 is certainly the most comfortable passenger machine



AFTER THE RACING.—Presenting the Grosvenor Cup:—(Left to Right) Mr. Harold Perrin, Flt. Lt. Chick (with Cup), Lt.-Col. Frank McClean, the Lord Edward Grosvenor, and the Misses Grosvenor. On the extreme right is the nose of the R.A.E. Hurricane and its Bristol Cherub engine with which the Cup was won.

Lympne Aeroplane Race Meeting.

SHELL

sweeps the board!

GROSVENOR CUP
1ST, 2ND & 3RD
WON ON SHELL

14 of 15 events won on Shell

ALL HEIGHT AND SPEED RECORDS made on SHELL

Shell

PERFORMANCE IS PROOF!



A VISITOR.—The only living Sopwith Grasshopper in captivity. The pilot and passenger of the Grasshopper are seen on the right.

one has ever been in. Conversation in ordinary tones in the cabin is easy, and the lack of noise from rattle of various parts of the aeroplane which are usually present, even in new machines, is missing altogether. The take-off entirely lacks excitement and the landing is extremely reminiscent of that of the crow. Also it is exceedingly interesting to watch the working of the wing flaps from the windows.

On Monday the course was exceedingly bumpy and Mr. Broad's passenger in the heat of the International Race was very ill. For the final of this event he had promised to take a lady passenger and everyone tried to persuade her not to go. However she refused to be put off and came out at the end with flying colours not having felt the least ill during the whole race. It was very interesting to see the way the two Moths kept together over the first seven laps of this race and at the finish when only one Moth appeared it was reminiscent of the last Boat Race when everybody on Barnes Bridge wanted to know where was Oxford, who, it may be remembered, sank half-way. It is unfortunate that Mr. Cobham also sank at the last turning point, as Mr. Broad was only leading during the whole course by a few yards and it seemed to promise a very exciting finish.

The first explanation of Mr. Cobham's mishap which one heard was that he had tried to turn the Moth too quickly and it had come off in his hand.

While this particular race was in progress Mr. Courtney went up and performed the most amazing stunt one has ever seen in exhibition flying. He went up to a height of about 1,000 feet and by using the altitude control of his engine he caused what is always described in newspaper accounts of accidents as "loud explosions." He then put the machine into what looked to the uninitiated like an uncontrollable nose-dive, and the machine, still falling vertical, disappeared behind the trees to the horror of the spectators who expected to find him "a tangled mass of wreckage."

Some people however knew Mr. Courtney's fondness for leg-pulling and also knew that behind these trees the ground fell away some 400 feet and they knew that there was plenty of room to recover.

The ambulance was started up but after about three minutes a whirr was heard and Mr. Courtney appeared from behind the shed from a totally different direction to the general relief of the public who realised that they had had their legs thoroughly pulled. Many people who were "in the know" felt quite relieved when Mr. Courtney did eventually appear as the "death dive" was so extremely realistic.

As was foreshadowed in THE AEROPLANE the majority of people this year stayed at the Grand Hotel, Folkestone, instead of in Hythe, and the change was a great improvement. This hotel was made the meeting place every evening and the whole week-end was thoroughly cheery. One hears that this is the last occasion on which this meeting will be held at Lympne, but personally one hopes that this is not the case. If the meeting were held in London everyone would go their several ways in the evening and there would not be that general foregathering of everybody connected with aviation which one gets at Lympne. There is no doubt that this is a very good opportunity for the whole of the Aircraft Industry to meet one another once a year as it helps them all to know one another in a way which otherwise is impossible. Perhaps however if the meeting were held at Hendon, the Country Club might be made into quite an acceptable *rendezvous*.—G. D.

AMATEUR DESIGN AND CONSTRUCTION AT LYMPNE.

One of the most gratifying features of the Lympne meeting was undoubtedly the success which attended the efforts of the Cranwell and the R.A.E. Aero Clubs, with their privately designed and constructed light aeroplanes. Both of these bodies are of course in a position somewhat more favourable for undertaking the actual building of aircraft than are the majority of amateur would-be constructors. But it cannot by any means be suggested that they possess either the accumulated experience in design or the workshop facilities which have gone to produce the trade-built machines against which the Hurricane and the C.L.A.3 so successfully competed.

One advantage the amateur builder of a light aeroplane does undoubtedly possess over the regular aircraft constructing firm. The British aircraft manufacturer at present, at any rate, can only look upon the light aeroplane as an unimportant side-line to his regular business. To the amateur constructor the light aeroplane of the moment is the one thing that matters.

The aircraft constructing firm may build a machine for a big competition, but it expects that that machine shall compete as it was orginally constructed. When the competition for which it was designed is over, it is highly probable that the machine will rest in a corner of his works untouched and unthought of until the Royal Aero Club institutes a race meeting in which it can compete. If it is still in reasonable condition—that is, will not require the expenditure of too much labour and too much money to put it once more into flying trim—that machine may then reappear.

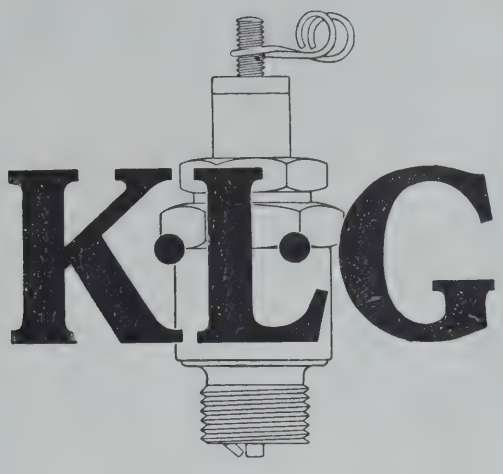
To the club or other private constructor a light aeroplane of their own manufacture, however, is by no means a side line to leave in a corner between competitions. It is the result of heavy expenditure and hard labour to produce in the first instance, and even after the machine has been completed, tested, and possibly flown in the contest for which it was built, there is every inducement to keep on experimenting with and trying to improve the machine.

As an instance, the R.A.E. Club's Hurricane is a good example. At the first Lympne meeting it failed to perform—mainly as the result of trouble with engine and airscrews. In the two years which have intervened the machine has been very considerably modified, with the result that it has scored a substantial success sufficient to place the R.A.E. Club in a fairly comfortable financial position and to allow it to consider undertaking still further construction.

The Cranwell monoplane, whose success is not the result of continued experiment, but of sound and clever design, is none the less a triumph of hard voluntary work inspired by enthusiasm, and may be considered to show that these qualities in the amateur constructor may suffice to overcome the handicap imposed by his lack of the financial and material facilities enjoyed by the Trade constructor.

Hard work and enthusiasm are qualities very much to be valued in the development of aviation, and if—as the R.A.E. and Cranwell Clubs' doings suggests—they will enable the amateur to compete with the Trade in the design and construction of sporting aircraft, then everything is to be gained by encouraging such enterprise.—W. H. S.

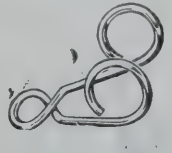
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R.A.F. INTELLIGENCE.

The London Gazette.

Air Ministry, July 28.

General Duties Branch.—The following are granted S.S. comns. as Plt. Offs. on probation, with effect from, and with seniority of, July 18:—H. B. M. Barton, R. Connor, A. C. Foreman, E. J. George, S. J. Gilbert, J. D. Greaves, P. E. Grenfell, F. W. H. Hall, A. V. Harvey, A. E. Hill, F. S. Hodder, G. H. C. Ingle, W. T. Jones, G. H. C. Keay, H. J. F. Kempthorne, J. C. Lewis, T. K. Merrett, S. F. Prince, F. O. W. Stokes, J. W. Stokes, D. S. Thomas, G. H. Walker, A. W. Whitta, R. A. Wills, F. G. S. Wilson, J. N. Young.

Lt. A. G. Boon, the Royal Scots, is granted a temp. comn. as Flg. Off. on seconding for four years' duty with the R.A.F. (July 18).

Lt. J. Hadden, The Black Watch, is granted a temp. comn. as a Flg. Off. on seconding for four years' duty with the R.A.F. (July 18).

Plt. Off. on probation A. O. Pollard, V.C., M.C., D.C.M., is confirmed in rank (July 11).

Flt. Lt. W. F. Floyd is placed on the retired list (July 27).

The following are transferred to the Reserve:—Class A.—Flt. Lt. M. D. Nares, A.F.C. (July 26); Flg. Off. F. J. E. Feeny, D.S.O., (July 29). Class C.—Flg. Off. J. G. Argles (July 7).

The S.S. comn. of Plt. Off. on probation E. Stanier is terminated on cessation of duty (July 29).

Flg. Off. H. J. Storey is dismissed the service by sentence of General Court Martial (July 13).

Medical Branch.—Flt. Lt. A. E. Henton relinquishes his temp. comn. on ceasing to be employed and is permitted to retain his rank (July 8).

The following Capts., Army Dental Corps, are granted temp. comns. as Flt. Lts. on attachment for four years' duty with the R.A.F. (July 1). They will continue to receive emoluments from Army funds:—M. J. O'Reilly, S. A. McCormack, P. P. Hogan.

The following Flt. Lts. (Capts., Army Dental Corps) relinquish their temp. comns. on return to Army duty (July 1):—G. F. Charles, L. Somerville-Woodiwis, J. H. W. Fitzgerald.

Reserve of Air Force Officers.—The following are granted comns. on probation in Class A, General Duties Brench, in the ranks stated (July 28):—Flg. Off.—H. W. Smith. Plt. Offs.—J. Gallacher, H. R. Hayden, H. Tulloch.

The following are confirmed in rank:—Flg. Offs.—S. B. Croydon (July 9); W. E. G. Cutler, W. E. Gandell, M.M., L. E. Owen, R. B. B. Sievier, M.C., R. B. Tapp (July 27).

Plt. Offs.—M. C. Kerr (July 12); E. F. S. Hughes, C. R. A. Page, W. G. Robinson, E. M. Stewart (July 27).

Flt. Lt. P. A. de Fontenay D.F.C., is transferred from Class C to Class A (June 18). Flg. Off. G. S. Coggan is transferred from Class A to Class B (July 28).

Appointments.

Week ending July 25.

General Duties Branch.—Squadron Leaders A. H. Measures, O.B.E., to S. of T.T. (Men), Manston, 27/7. R. H. Kershaw, to H.Q., I.A., 10/8. J. A. G. De Courcy, M.C., to I.A.A.D., Henlow, 20/7.

Flight Lieutenants E. W. Broadberry, M.C., to R.A.F. Depot on transfer to Home Estab., 20/7. E. F. Waring, D.F.C., to R.A.F. Base, Calshot, 23/7.

Flying Officers H. R. McL. Reid, D.F.C., and G. H. Huxham, to Aden Flight, 24/6. J. H. Tanner, to R.A.F. Base, Calshot, 27/7. G. Terrell, to No. 6 Sqdn., Iraq, 28/6. A. G. Boon and J. Hadden, to No. 2 F.T.S., Digby, on appt. to Temp. Comns. on being seconded from the Army, 18/7. S. T. Littleton, to No. 1 S. of T.T. (Boys), Halton, 20/7. G. A. R. Muschamp, to H.M.S. *Eagle*, 16/7.

The undermentioned Flying and Pilot Officers are all posted to No. 4 F.T.S., Egypt, with effect 17/7:—Flying Officers W. H. Burbury, H. L. Drake, M. C. Pascoe, N. A. Platts. Pilot Officers W. S. Barnicott, P. E. Berryman, J. W. Busteed, G. P. Butcher, H. A. S. Byrne, A. H. Campbell-Horsfall, E. H. Collinson, H. V. Crowder, T. G. H. Ewens, S. B. Flood, M. H. Frame, J. N. Goodwin, J. A. Hawkings, A. J. L. Hughes, L. M. S. Knight, C. A. C. Patton, E. C. L. Richardson, W. L. Robertson, W. J. M. Spaight, N. E. C. Squire, I. R. Sweeting, W. S. Townend, P. G. Tweedie, E. J. H. Wathen, R. C. Whitle.

Pilot Officers.—The undermentioned Pilot Officers are all posted to No. 2 F.T.S., Digby, on appt. to S.S. Comns. 18/7:—H. B. M. Barton, R. Connor, A. C. Foreman, E. J. George, S. J. Gilbert, J. D. Greaves, P. E. Grenfell, F. W. H. Hall, A. V. Harvey, A. E. Hill, G. H. C. Ingle, W. T. Jones, F. S. Hodder, G. H. C. Keay, H. J. F. Kempthorne, J. C. Lewis, T. K. Merrett, S. F. Prince, F. O. W. Stokes, J. W. Stokes, D. S. Thomas, G. H. Walker, A. W. Whitta, R. A. Wills, F. G. S. Wilson, J. N. Young.

Stores Branch.—Flight Lieutenant J. Roberts, to No. 4 Stores Depot, Ruislip, 4/8. J. K. McDonald, to Air Ministry, 10/8. T. A. G. Hawley, to No. 1 Stores Depot, Kidbrooke, 10/8.

Medical Branch.—Flight Lieutenants (Hon. Sq. Ldr.) W. R. Reith, M.D., A.M., to Inspector of Recruiting, 4/8. J. K. R. Landells, M.B., to R.A.F. Depot, 1/8. Flt. Lt. (Dental) H. E. Flavelle, to No. 5 F.T.S., Sealand, 27/7. Flg. Off. (Dental) V. P. Ellis, to H.Q., Cranwell, 22/7. Flg. Off. P. D. Barling, M.B., to Central Medical Board, Hampstead, 4/8.

Week ending Aug. 1.

General Duties Branch.—Air Commodore F. V. Holt, C.M.G., D.S.O., to H.Q., Air Defences of Great Britain for duty as Chief Staff Officer, 23/7.

Group Captain C. R. S. Bradley, O.B.E., to I.A.A.D., Henlow, pending taking over command, 21/7.

Wing Commander P. Babington, M.C., A.F.C., to Station H.Q., Duxford, to command 21/7.

Squadron Leaders R. Collishaw, D.S.O., O.B.E., D.S.C. D.F.C., to No. 23 Sqdn., Henlow, 1/7. A. F. Brooke, to No. 43 Sqdn., Henlow, 1/7.

Flight Lieutenants F. J. Powell, M.C., to Supdt. of Reserve, Northolt, 9/7. H. G. Bowen, O.B.E., to H.Q., Special Reserve and Auxiliary Air Force, 27/7. R. C. Preston, A.F.C., to No. 502 Sqdn., Aldergrove, 29/7. G. Martyn to H.Q., Special Reserve and Auxiliary Air Force, 27/7. R. C. Calvey, to No. 43 Sqdn., Henlow, 9/7. A. P. M. Sanders, A. G.

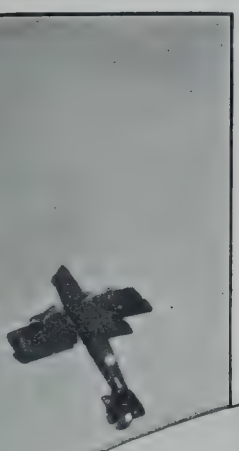
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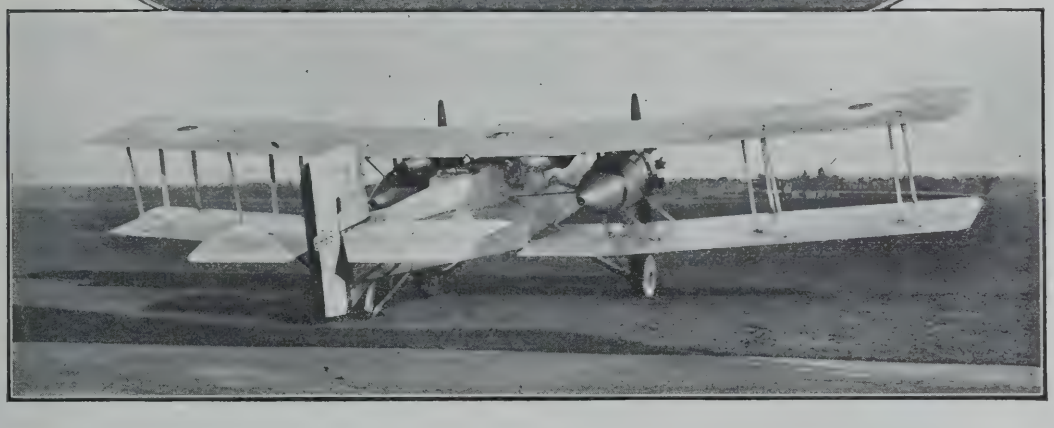


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Jarvis, A.F.C., and G. S. Shaw, to School of Photography, South Farnborough, 3/8.

Flying Officers H. G. Rowe and J. L. Airey, D.F.C., to School of Photography, South Farnborough, 3/8. A. E. Reynolds, to No. 23 Sqdn., Henlow, 20/7. R. H. Haworth-Booth, D.F.C., to No. 23 Sqdn., Henlow, 6/7. A. W. Wood, to No. 43 Sqdn., Henlow, 8/7. D. C. Prance, to No. 23 Sqdn., Henlow, 1/7. B. W. T. Hare, to No. 43 Sqdn., Henlow, 1/7. E. J. H. Wright, to No. 43 Sqdn., Henlow, 9/7. N. M. Ffrench, to No. 23 Sqdn., Henlow, 6/7. B. W. Duley, M.M., to No. 23 Sqdn., Henlow, 14/7. N. A. P. Pritchett, to No. 43 Sqdn., Henlow, 1/7. E. F. Mattock, to R.A.F. Depot, 16/7. G. N. P. Stringer and T. W. G. Cattell, to R.A.F. Depot, 16/7. G. J. Southam, to R.A.F. Depot, 12/7.

Pilot Officers C. J. Pavia, to R.A.F. Depot on transfer to Home Estab., 10/7. J. F. Young, to No. 2 F.T.S., Digby, 27/7. A. W. B. McDonald, to No. 23 Sqdn., Henlow, 1/7.

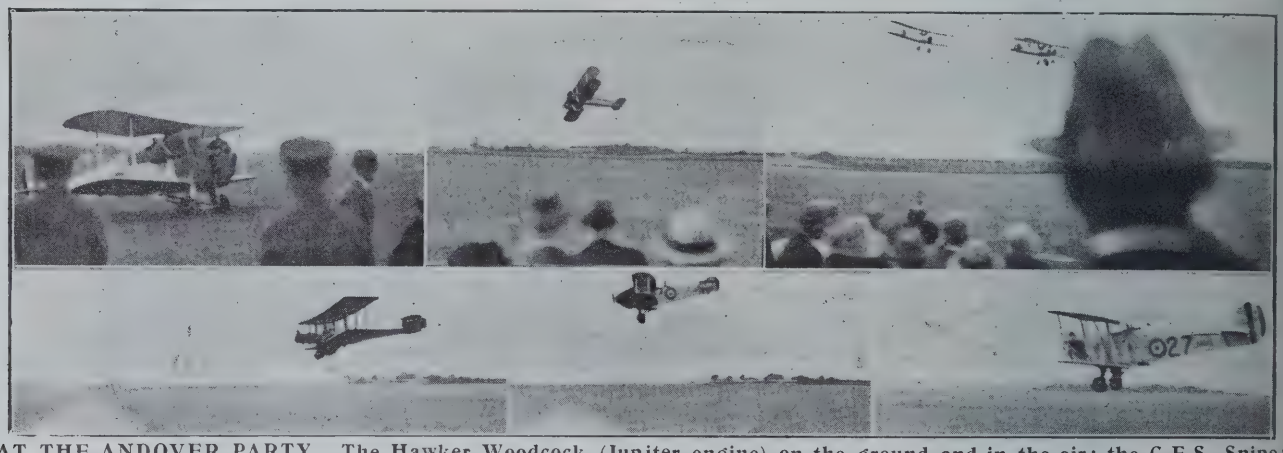
ANDOVER AT HOME.

The Meteorological Department seems to have a kindly feeling for the R.A.F. Station at Andover. This is right and proper seeing that at Andover the Staff College trains the brightest brains of the R.A.F. Anyhow, while Goodwood was blanketed by mist the aerodrome at Andover was mostly basking in bright sunshine on July 29, and the miniature Pageant staged, or perhaps one should say skied, by No. 7 Group, R.A.F., was wholly a success. Quite a large proportion of the best people in the neighbourhood of Salisbury Plain were present, for the R.A.F. at Andover seems to be quite accepted by the County, which is as it should be.

Everything was excellently done. The Station Band played very well indeed. And the events were run off to the minute as smartly as those of the R.A.F. Pageant at Hendon.

The first event was a Landing Competition for Avros of which nine were entered. Certainly the best "standstill" landing was done by the Staff College's own Avro but unfortunately it was outside the imaginary field in which the machines were supposed to land. The Competition was won by Flg. Off. Greig of the C.F.S.

Following this came a Display of Flying on a Boulton and Paul Bugle (two Bristol engines) by Sq. Ldr. Longton, now commanding 58 (B) Squadron, Vickers Virginias, at Worthy Down. Apparently Sq. Ldr. Longton is now recognised as the star turn twin-engine pilot just as he used to be recognised as the master of single-seaters. The Virginia, being a long-range night-bomber, is hardly suitable for aerobatics, whereas the Bugle, which apparently has a cruising speed of somewhere about 120 miles an hour, is just about as handy as any



AT THE ANDOVER PARTY.—The Hawker Woodcock (Jupiter engine) on the ground and in the air; the C.F.S. Snipe; the full-load Virginia landing; the Avro Bison; and the Blackburn Dart—the three last with Napier engines.

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SECOND. ARMSTRONG WHITWORTH (SISKIN IV).
Pilot: Sqn. Ldr. H. W. G. Jones, M.C.

THIRD. DE HAVILLAND (D.H. 37).
Pilot; Major H Hemming, A.F.C.

CROYDON STAKES.

(523 miles).

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single-seater. Consequently Sq. Ldr. Longton proceeded to do with the Bugle rather more than he did with it at Hendon as he was not concerned with fighting any other machine. Like all his flying, the performance was just as perfectly finished an exhibition as one could wish to see, and certainly nothing could give better proof of the perfection of Boulton and Paul aerodynamic design and all-steel construction.

Event No. 3 was a Message-Collecting Competition between four machines entered by the three Army Co-operation Squadrons, 4, 13 and 16, and the School of Army Co-operation. All four pilots put up a very good show. The winner was Flt. Lt. C. W. Hill of No. 16 Squadron.

Event No. 4 was a Bomb Attack on a very Oriental fort by three Vickers Viginias of No. 58 (B) Squadron, piloted respectively by Flt. Lt. H. S. Scroggs, Flt. Lt. J. C. Foden, A.F.C., and Flg. Off. H. H. Brookes. Perhaps the second-named pilot will forgive the remark that in view of the number of steam wagons which one meets on the road bearing his name there is a certain appositeness in his being a pilot of the most stately of long-range bombers.

Like the bombers in the R.A.F. Pageant at Hendon these machines also seemed to be equipped with those curious gliding bombs which reach their objective in front of the machines which drop them. The gliding bomb seems to be taking its place in the R.A.F. vocabulary along with the apochryphal sky-hook which was invented by some bright imagination in the days of the earliest box-kites and has been alleged to support quite a number of aeroplanes which seem to have the habit of retaining their height without visible forward progress.

After the fort had given its exhibition of spontaneous combustion the three Virginias gave a good show of formation flying, which was really clever of their pilots considering the gustiness of the wind, though the huge size of the machines somehow suggested an elephant battery doing the kind of musical drive usually performed by the Horse Gunners.

After the Virginias had landed a wonderful display was given by a new type of machine which seemed to have no name. In fact one believes that the machine does not really exist and is only a rumour so far as documentary evidence is concerned. Neverthless all the R.A.F. people present wished that they had some few hundreds of machines like her and she certainly showed that when once the hindering hands of the experts are removed our designers have nothing to learn from any other country. One very experienced war pilot remarked "That's the first real aeroplane I've seen since the Albatros. And I always used to see those from the wrong end." Presumably the R.A.F. will have a few aeroplanes of this kind about when the design has become obsolete.

Following the performance by this entirely illusory aeroplane there was an amusing flight between a Bristol Fighter (Rolls-Royce) piloted by Sq. Ldr. H. G. Smart, O.B.E., D.F.C., from the C.F.S., and two Hawker Woodcocks (Bristol Jupiter) of No. 3 Fighter Squadron piloted by Flt. Lt. N. C. Saward and Plt. Off. F. W. M. Matthews. The Bristol flew thoroughly well, as Bristols always do, and the Woodcocks performed in the agile manner always associated with the Sopwith-Sigrist-Hawker products.

Thereafter came a very pretty exhibition of Squadron Drill by nine Fairey Fawns (Napier engines) of No. 12 (B) Squadron, led by Sq. Ldr. Alec Gray. They did everything to which one has become accustomed at Hendon Pageants and showed that the new generation of R.A.F. pilots are quite up to the best wartime standard.

After that came sundry evolutions by three Snipe from the C.F.S. piloted by Flt. Lt. H. A. Hamersley, D.F.C., Flt. Lt. H. H. Down, A.F.C., and Flg. Off. J. N. Boothman. The wind was far too bumpy for close formation but the actual flying itself was admirable.

One particular evolution which one believes is new, at any rate for exhibition purposes, was an "outside spin" which each machine performed in turn. That is to say, the machines spun solemnly down partly on their backs, with the pilot on the outside of the spiral all the way, so that instead of being a banked turn pulled out into a vertical corkscrew it was really a kind of roll performed vertically downwards. It is a nasty sight till one sees how perfectly the pilots come out of the spin with hardly any effort. In fact one was told that the real difficulty is to hold the machine into a spin.

The last event was a fly-past of the different types of aircraft which No. 7 Group have somehow managed to acquire. The fifteen machines which paraded were :—D.H.53, Avro, Snipe, Woodcock, Grebe, Siskin, Bristol Fighter, Fawn, D.H.9a, Bugle, Vimy, Virginia, Dart, Blackburn and Bison. They made quite an interesting display, even though the most modern of them was about three years' old in construction and about five years' old in design.

A Bristol school biplane (Lynx engine) piloted by Mr. Campbell flew assiduously all the afternoon taking up passengers, and must have made quite a lot of money for the R.A.F. Memorial Fund.

The Officers who were responsible for the arrangements deserve to be congratulated on their staff work and one thanks all concerned for a very pleasing afternoon.—C. G. G.

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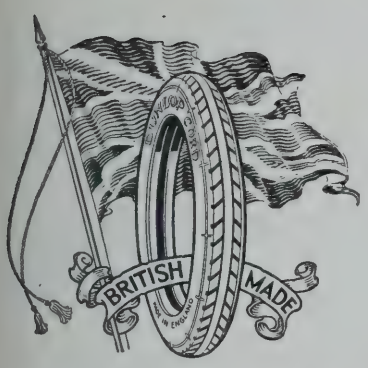
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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 14; Tuesday, 23; Wednesday, 17; Thursday, 27; Friday, 3; Saturday, 37; Sunday, 15.

IMPERIAL AIRWAYS LTD.

London—Paris—Zurich; London—Ostende—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 56, passengers 200, freight 14 tons.

AIR UNION:

Paris—London: Machines 63, passengers 387, freight 9½ tons.

K.L.M:

Amsterdam—Rotterdam—London: Machines 14, passengers 76, freight 2 tons.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 3, passengers 5.

SPECIAL MACHINES: Nil.

Total number of trips by British machines: 56, carrying 200 passengers. Foreign machines: 80, carrying 468 passengers.

Comparative Figures:

For week ending Aug. 2:
Machines, 136; Passengers, 668; Crews, 197; Total personnel, 863.

Corresponding week, 1924:
Machines, 173; Passengers, 816; Crews, 213; Total personnel, 1,029.

Corresponding week, 1923:
Machines, 139; Passengers, 730; Crews, 224; Total personnel, 954.

Corresponding week, 1922:
Machines, 161; Passengers, 468; Crews, 266; Total personnel, 734.

Corresponding week, 1921:
Machines, 107; Passengers, 470; Crews 132; Total personnel, 602.

Corresponding week, 1920:
Machines, 104; Passengers, 212; Crews, 131; Total personnel, 343.

Croydon Notes.

Owing to one's having to spend most of the week at Lympne one is not able to give any first-hand information as to what has taken place. However, as various percentages of the Grand Fleet of Imperial Airways Ltd. has from time to time appeared at Lympne news from the famous landing ground for many French and a few British aeroplanes has come through.

Imperial Airways have gradually been improving the disgraceful position into which they have allowed themselves to drift by not ordering new machines a year ago. They still, of course, have no new machines and are not likely to have any for months, but they are gradually patching up the old gang and carrying on.

On Monday the Grand Fleet available consisted of 2 machines. On Tuesday it was increased to 3, and on Wednesday there were 4. On Thursday 5 were available.

Bad weather interfered with Friday's service and on Saturday there were 6. One was informed on Sunday that 8 machines were available and as only 6 machines were required to run the whole of the services of Imperial Airways, what was the hurry about?

One cannot help thinking that if Imperial Airways had another half-dozen big machines available they might have carried some of the 387 passengers which were carried during the week between London and Paris by the French Goliaths, more especially in view of the fact that on all their services Imperial Airways only carried 200 passengers. It does not *seem* quite satisfactory.

The D.H.54 landed at Croydon during the week piloted by Capt. Geoffrey de Havilland and Mr. Broad and carrying as passengers the Maharajah of Jodhpur and members of his polo team and Sir Sefton Brancker. It was greatly admired. A description of a flight in this machine appears in the account of the Lympne Meeting.—G. D.

PERSONAL NOTICES.

FORTHCOMING MARRIAGES.

BERTRAM—ELIOTT-LOCKHART.—The marriage arranged between Flg. Off. Ian A. Bertram, R.A.F., and Miss Dorothy Eliott-Lockhart will take place at Christ Church, Lanark, on Aug. 25.

GARRITY—HANCOCK.—A marriage has been arranged between Flt. Lt. Arthur Garrity, R.A.F., elder son of the late Mr. Arthur Garrity and Mrs. Garrity, of Rochester, and Dorothy, only daughter of the late Mr. J. Gething Hancock and Mrs. Gething Hancock, of 40, Bramham Gardens, S.W.

ELLEN—GARDNER.—The marriage of Flt. Lt. Cyril N. Ellen, D.F.C., Royal Air Force, son of the late Mr. William Ellen, of Seaham Harbour, and Mrs. Ellen, and Gladys Lily, eldest daughter of Mr. and Mrs. Gardner, of Highgate, will take place on Saturday, Oct. 3, at 2 p.m., at St. James's, Muswell Hill.

WESTON—PARSONS.—A marriage has been arranged, and will shortly take place, between Flt. Lt. W. G. Weston, M.B., Ch.B. (Edin.), Royal Air Force, eldest son of the late W. J. Weston and Mrs. Weston, of Taranaki, New Zealand, and Mrs. George Parsons, of No. 8, Albert Hall Mansions, Kensington Gore, S.W.7.

TURNER—FAIR.—A marriage has been arranged, and will take place in Hong Kong in November, between Michael H. Turner (late Capt., R.A.F.), son of the late Sir George Turner, M.B., and Lady Turner, to Daisy Mainwaring Fair, only daughter of Canon Lockett Ford, vicar of All Souls', South Hampstead.

BIRTH.

COBHAM.—On July 22, at 27, Buckland Crescent, Hampstead, to Gladys, wife of Alan J. Cobham—a son.

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INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXIX. No. 7. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"I GO WITH ALL CONVENIENT SPEED."

(The Merchant of Venice.)

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THE BEST YET.—The new D.H.54 (650 h.p. Rolls-Royce Condor) taking off at Lympne aerodrome with a load of passengers. This machine was built for the Air Ministry, who fortunately remembered (unlike our Great British Air Combine, Imperial Airways Ltd.) to order new types of machines for this year. The D.H.54 carries 14 passengers, has a top speed of 120 m.p.h. and lands at less than 50 m.p.h. She is the only really new British Air Liner produced for several years and is undoubtedly the best commercial machine in the world.

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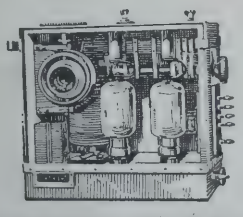
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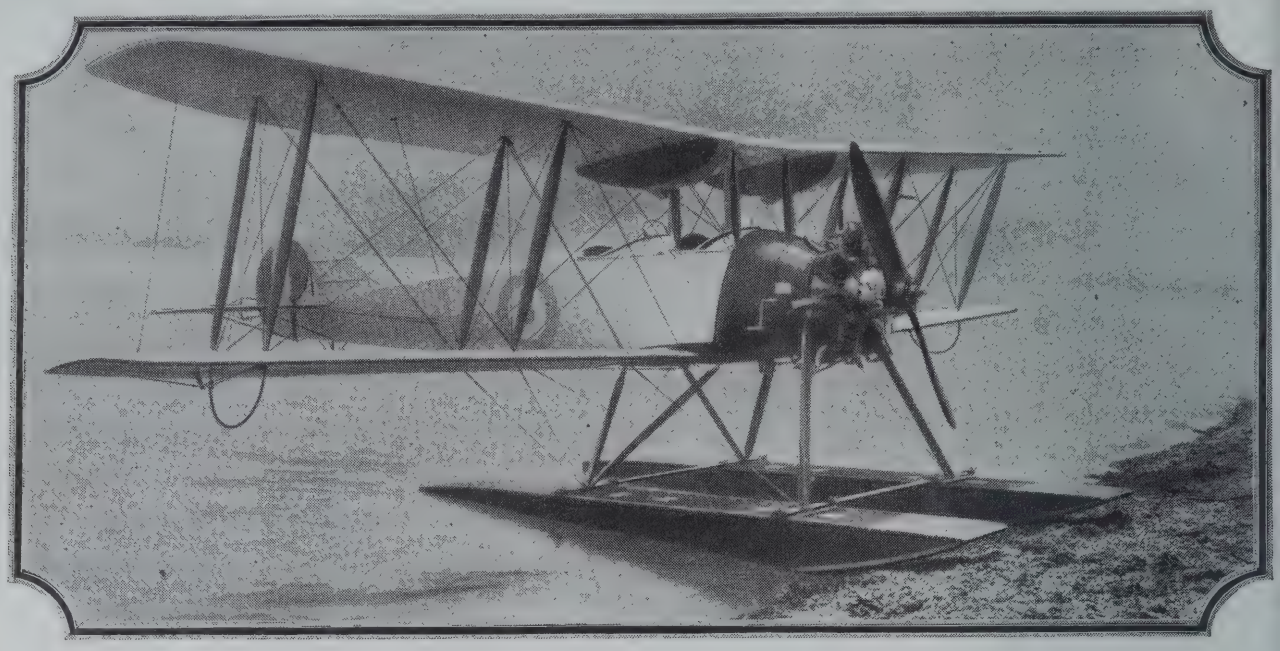
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AUGUST 12, 1925.

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Incorporating

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ON MISREPRESENTATION.

Under a double column heading on July 27 *The Morning Post* indulges in another of its periodical attacks on the Air Staff. The heading this time is "*Air Ministry Waste,*" and the particular charges are that a portion of the Air Ministry has moved to new offices in Whitehall, and that a big contract for parachutes for the R.A.F. has gone to America.

One would ignore these hysterical outbreaks on the part of *The Morning Post* but for the fact that quite a number of the best people read that paper and may be misled by it. Therefore in case readers of THE AEROPLANE may, in the course of their social life come up against these charges by *The Morning Post,* there seems reason for refuting them.

The facts of the first charge, as stated in *The Morning Post,* are that Sir Samual Hoare, Secretary of State for Air, and Sir Philip Sassoon, Under-Secretary, and Sir Sefton Brancker, Director of Civil Aviation, have moved to Gwydyr House, Whitehall.

Anybody of intelligence must have realised long ago that the present premises in Kingsway, originally built for commercial offices, are entirely unsuited to the needs of a great Government department. They are far removed from the Admiralty, War Office, Home Office and Foreign Office, with which the Air Ministry has to co-operate as closely as possible. The premises in Kingsway were obviously a makeshift from the start, and anyone could see that sooner or later they would have to move into the governmental area which lies between the Houses of Parliament and Trafalgar Square.

One imagines that sooner or later the Air Staff will have to move to that same area, leaving the purely technical people and the subsidiary branches at Adastral House until such time as the ever-increasing importance of the Air Force necessitates the building of premises comparable with those of the Admiralty and the War Office. If in the old days when money was worth so much more, the nation could afford proper housing for the heads of the Navy and the Army, surely in these days, when the Services of the State are supposed to be so much more important we can afford proper accommodation for our First Line of Defence.

So far as parachutes are concerned, *The Morning Post* says :—

"By placing this contract abroad the Air Ministry has expressed the view that British parachutes are not so good as American ones. This view is probably correct, yet in 1918 British inventors were experimenting with free parachutes identical in principle with the American type now adopted by the Air Ministry Almost every thing that could hamper British parachute inventors has been done. Designs showing brilliant promise were contemptuously cast aside at the end of the War by the Air Ministry In 1918 automatic free parachutes showing an advance in thought over any types now in existence had been made and later were tested successfully with human experimenters R.A.F. officers and men engaged on parachute development have been hampered by a host of extra duties, and virtually have been prevented by force from doing useful experimental work."

THE AEROPLANE rather prides itself on knowing pretty well what is going on inside the R.A.F. But this information, alleged to be true, in *The Morning Post* is certainly new to the Staff of THE AEROPLANE.

When one was in France a week or so before the Armistice quite an amount of experimenting with parachutes was being done at Hesdin, chiefly under Major Blackburn, now Wing Cdr. and O.C. the Experimental Station at Martlesham Heath. Many of these parachutes showed considerable promise. Also in England Lt.-Col. Holt, of the Yorkshire Steel Company, the inventor of the Holt Parachute flare, had some quite interesting parachutes in process of experimentation.

When the R.A.F. was virtually disbanded in 1919, naturally experiments in all departments were cut down, simply because there was no money to pay for them. But there was nothing to prevent any intelligent commercial concern from taking up existing parachute designs and developing them in exactly the same way that young Mr. Irving developed his parachutes as a purely commercial proposition in the United States.

Moreover because there was so much cutting down of expenditure on the Royal Air Force itself, there was the more reason why the civilian experts of the Royal Aircraft Establishment at Farnborough, which has been costing us several hundreds of thousands of pounds per annum, should have experimented with free parachutes of the types produced in embryo form by Col. Holt, and by Major Blackburn's department. Experimenting with aeronautical designs is no part of the duty of a serving officer, and any blame which can be laid at the door of any official person must be placed to the discredit of the Royal Aircraft Establishment at Farnborough and its experts.

But even granting that discredit, there still remains the fact that no commercial concern had the business acumen to develop parachutes. And surely *The Morning Post,* the essence of individualism, would rather have such things developed by free and independent commercial enterprise than



A MODERN ATROCITY.—Witley Park photographed by the Surrey Flying Services. This conglomeration of mixed styles was built by the late Mr. Whittaker Wright and was famous for the ballroom under the lake. The skylight for this room can be seen in the lake.

have them developed in such a socialistic institution as the Royal Aircraft Establishment.

The fact is that where parachutes are concerned we have simply been beaten by American enterprise. And as usual we have been forced to buy the finished American product at some little expense pending such time as we produce something better ourselves.

The case is rather analagous to that of the Ford car. By acquiring Ford cars, and thus sending many millions of pounds to America, the British Army during the War saved the Taxpayer many more millions of pounds which would have had to be spent if the Army had endeavoured to do with the heavier and more expensive British cars what was done by the Ford. And but for Ford competition we should never have had the Morris-Cowley, which is rapidly replacing the Ford in this country as a passenger vehicle.

History always repeats itself and we always go along in our old-fashioned, out-of-date way till some clever Englishman in America, inheriting that enterprise which originally prompted his forefathers to get out and get on, produces something that we want but have not got. And then we buy his product and proceed to make something better as the result.

At the finish we probably spend less money than if we had laboured away to produce a similar article ourselves and we certainly get a better article because we generally put in better workmanship and better material than is used in America and we certainly put on a better finish. Thus in the end we show a profit on the deal.

Meantime the hysterics of *The Morning Post* do serve to draw a certain amount of attention to important subjects and so in their way are useful. But it is a pity that influence among the best people in England which might do so very much good almost invariably gives the impression that it is being used for attacks prompted by personal malice rather than by a spirit of pure patriotism.—C. G. G.

THE RUSSIAN DANGER.

Regular readers of this paper will remember that on Feb. 11, an article appeared drawing attention to the similarity between the rise to power of Napoleon I after the French Revolution and the rise of the new Russian War Minister Frunze. Since that date little has been heard of Frunze. But on July 22, *The Morning Post*, which is a reliable newspaper in spite of its prejudices and misguided opinions, published the short article which follows :—

WAR ON ENGLAND.

FRUNZE TAKES UP THE MANTLE OF ZINOVIEFF.

Zinovieff having been induced to refrain from his daily speeches attacking this country, Frunze, the most bellicose of the Moscow Communists, has now taken on his mantle.

Frunze, writes our Russian Correspondent, has placed himself at the head of the so-called "military group," which is bringing great pressure to bear on the more moderate faction of the Soviet Government. The Red General Staff is feverishly making preparations for the possibility of an armed conflict with this country, and in consequence is re-grouping his Soviet forces.

General Skololeff's old plan for a Russian attack on India, worked out in the days of the Russo-Turkish war, has been dragged out from the archives of the Soviet War Office, and, it is stated, will serve as a basis for the plans of the Red Army leaders.

The attack on India will be carried out, so Soviet circles assure, by the Soviet Caucasian Army, and the new Mongolian Army, which is now being hurriedly organised. It has its headquarters at Urga, and can muster 100,000 men.

Various authorities have drawn attention to the fact that there is no difference between Czarist Imperialism and Soviet Imperialism, so it is natural that Frunze should revive Skoboleff's scheme for an invasion of India, which looks as if it were the weakest spot in the British Empire. Should Frunze decide to strike soon at India, instead of striking later at the weak Middle-European nations, the result will be interesting. In any case there will be plenty of work for the R.A.F. to do.—C. G. G.

A SERVICE POET.

"Collected Poems," by Maurice Baring. Wm. Heinemann, Ltd. 10s. 6d. net.

Somebody once said that the War, 1914-18, had turned the British Army into a collection of specialists. The growth of science in the fighting forces is bound to produce specialists, and eventually whole corps of specialists, as for example the Flying Corps, the Machine-Gun Corps, and the Tank Corps. The Flying Corps progresses until it becomes a fighting force, consisting entirely of specialists, each with a wide field of research in front of him. If the R.A.F. were of a boastful disposition, and, in spite of the rude remarks of the Hon. Member for Plymouth in the House of Commons on July 16th, it is not, it could boast of a variety of experts in honourable professions in addition to its great experts in all branches of air war.

In the current Air Force list, under the heading of Reserve of Air Force Officers, Hon. Wing Commander, will be found the name of one of the greatest living writers of English prose and poetry.

Maurice Baring was attached to R.F.C. Headquarters in August, 1914, and went to France with it a few days later in what he himself describes as "an unsatisfactory uniform and excruciating puttees." His delightful book, "R.F.C. H.Q., 1914-18," was published in 1920, and, so far as the Flying Services are concerned at any rate, is the best unofficial story of the campaign that has been written.

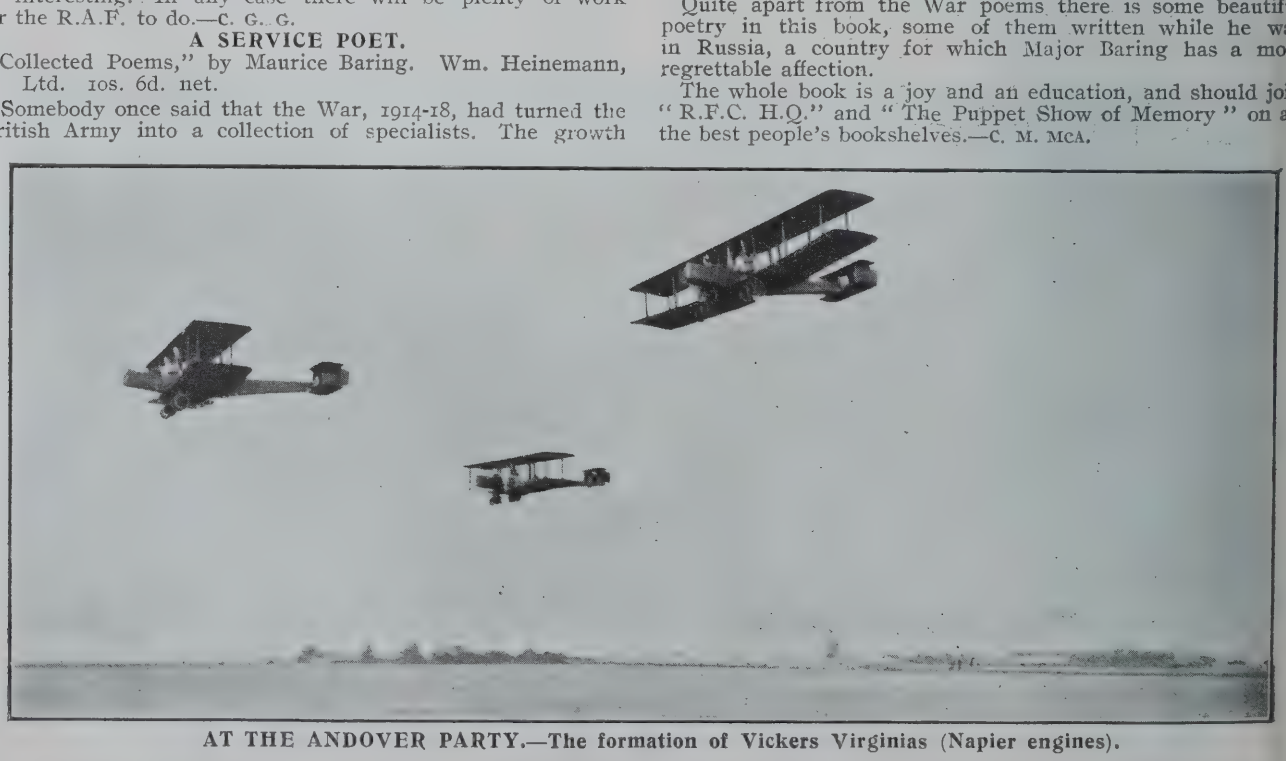
Those who have read and loved that book, even if they "hate poetry, except Kipling," should do their best to get hold of Wing Commander Baring's Collected Poems. This volume includes his plays in verse, and a number of lyric poems.

A good deal of verse has been written about the Flying Services, most of it rather nauseating, but Maurice Baring's work is tragic and stimulating at the same time, and if it brings back memories that are sad there is no bitterness in it.

His "In Memoriam" is too well known to be quoted here, apart from the fact that it would be a crime to separate any few lines from the rest of the poem. But it is an unforgettable epic of friendship. Dedicated to Lord Lucas, Captain R.F.C., who was killed in action in 1917, it has an equal appeal to all those whose friends in 1914-18 "failed to return."

Quite apart from the War poems there is some beautiful poetry in this book, some of them written while he was in Russia, a country for which Major Baring has a most regrettable affection.

The whole book is a joy and an education, and should join "R.F.C. H.Q." and "The Puppet Show of Memory" on all the best people's bookshelves.—C. M. MCA.



AT THE ANDOVER PARTY.—The formation of Vickers Virginias (Napier engines).

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THE IMPERIAL AIR WAY.

Paris-London—Amsterdam by Air, July 20-23, 1925.

By VAL. CRONSTEDT.

[*The following experiences of a non-British designer and pilot of aeroplanes give a good example of our Imperial Air way of doing things.*—C. G. G.]

As I was expected in London July 20 at 16.00, I had decided to take the first morning 'plane of the Imperial Airways scheduled to arrive in Croydon at 14.50.

With tickets duly bought I arrived at 10.45 at the Hotel de Crillon in Paris, at which time a bus was to take us from there to Le Bourget. At 11.15 an official of the Imperial Airways arrived with the news that the first trip of the day was cancelled. The reason given; wired advice from the Meteorological Service received that morning; the weather promised to be rough over the Channel.

After some inquiry it also transpired that out at Le Bourget every single 'plane was in the repair shop, and that one counted upon the arrival of a certain Vickers Vimy due in the forenoon to bring the second scheduled trip off. On that particularly calm and glorious day, lack of machines seemed really more likely a reason for cancelling a trip than the one given.

A general breakdown of all available 'planes at a field is a state of affairs that does not make itself apparent in the last minute. Surely the condition was to be foreseen at least on the previous day and passengers could have been notified in advance of the changes in time tables. For any well-run organisation, that is the thing to do; it is certainly not good form to beat around the bush by giving out futile excuses and far-fetched assertions as to the reasons.

Of course the Company emancipates itself in its contract from responsibility, not only as far as regards God's wrath, sudden death and so on, but also concerning the negligence, omission, misconduct, incapacity, or want of skill of the Company or their employees. In that case I would like to know what responsibilities the Company does feel itself strong enough to shoulder?

However, I have never yet seen an organisation that gives no guarantee for anything whatsoever entrusted to its care, that still considers itself a serious proposition.

As was expected the trip in the Vickers Vimy did not come off, that rescuer of time-tables not arriving at all. In a while, though, means of a sort were found by which the most impatient passengers could be shipped to London. The Air Union took them across in the name of Imperial Airways.

His Majesty's Mails.

Incidentally, a 'bus from the field brought with it a little yellow bag, that the driver tried to palm off on the personnel of the Hotel. The Baggage-Master did not want it. A bell-boy did not want it. Neither did the hall-porter nor the next person who got it thrust into his hands. My last glimpse of it was on the ground of the Hotel's driveway, in the neighbourhood of some trunks.

That carelessly handled parcel that went from one irresponsible person to another, was the morning's air mail from Great Britain. I understand that it sometimes even remains overnight at the Crillon, until somebody finds time to convey it to the Post Office in following morning.

Apart from the fact that regulation mail from one country to another is no matter for bell-boys and such-like officials gleefully to skip around with on the precincts of a hotel, it should still be evident that the purpose of air-mail is to reach its destination at a quicker pace than mail by boat and train. In view of the occasional stations overnight of the official mail-bag in the Hotel de Crillon, I abstain from comments. That most peculiar way of handling Governmental business is to my mind a too serious matter for private individuals to enlarge upon in print.

Off At Last.

However, as stated, the Air Union stepped in. I myself, insisting on being conveyed by Imperial Airways Limited and not by another company, finally got off from Le Bourget at 17.06. By that time somebody had succeeded in scaring up a 'plane.

It may be interesting to note that this machine was equipped with single streamline tie rods in all bays of the lift truss, a construction which experience has shown to be unreliable.

In the cabin someone had stowed some freight that, I presume, did not have room in the tail. It consisted of wooden boxes, cardboard boxes, paper parcels and bundles, a most untidly looking cargo. Moreover, this "emigrants' luggage" was tied to the curtain guides with plain twine. The idea was, I imagine, to keep it in place, and it began to shift during the voyage.

We landed safely at Croydon at 19.20. I happened to see the Vickers Vimy, the hope that failed, at noon. It stood on the field and judging by a hasty look in passing, I should deem it to be a model of 1919.

The 'bus taking us to Hotel Victoria, belonged to the Air Union. We arrived there at 20.24. As we should have been there at 15.15 we were 5 hours 9 minutes late.

Observations.

I wish to acknowledge the evident good will and courtesy of the Company's personnel in Paris. Their efforts to get some order in the mess were desperate. That with a perfectly ridiculous lack of equipment they cannot accomplish very extraordinary marvels is not to be wondered at.

But apart from this creditable fact, one does not know whether to grin or to shudder. On July 20 the observations from my first actual contact with European commercial aviation, makes up this list:—

(1) That printed time-tables represent merely the probable ideal.

(2) That two (2) trips on the same day were cancelled due to insufficient equipment.

(3) That the air-mail of England was neglected in a disgraceful way.

(4) That the obligations of the Imperial Airways are sometimes fulfilled by a competing company.

(5) That according to the ticket contract they have no obligations at all.

(6) That a 'plane running in passenger traffic has single lift wires.

(7) That the freight of the Imperial Airways at times is stowed so that it can escape from its moorings and hit the passengers on the head.

(8) That the reserve park of the Imperial Airways consists of one machine six years old.

Considering these facts, one might well conclude that the performance of July 20 was one of the most spectacular instances of mismanagement that it may be a man's good luck to witness. It is testified not merely by an utter disregard of the value of the time of travellers but also to a complete lack of the proper professional pride that sees to it that an enterprise once begun is decently carried through. And to any airplane man that must needs seem rather humiliating.

Still, I have since then learned that by trusting oneself to an airline one may come against more serious trouble than losing five hours of a business day.

A New Mishap.

Bound for Amsterdam from London on July 23 we were taken out to Croydon early in the morning. We three passengers, that is two Americans and myself, were told to board a 'plane which we later found out to belong to a German company. Our tickets were issued by the Imperial Airways Limited. The 'plane itself was a Dornier with a modified landing-gear and a Rolls-Royce engine.

If the I.A. does sub-let some of its trips the responsibility of using this type of plane may not entirely rest upon it, but if on the contrary this is not so, then I wish to mention that it *does* seem rather a thoughtless policy to use as a vehicle for passenger transport a machine, one characteristic of which is that the structure of the attachment of the fuselage to the wing is statically indeterminate. As the practice of single lift-wires, mentioned above, so is the employment of machines with strongly suspected inherent weaknesses not the thing to do.

Passenger transportation demands, one would think, a higher degree of safety than freight traffic and individual private flying. It should be remembered that passengers as a rule are laymen in aeronautical construction and have therefore blindly to rely on the sense of responsibility of the company together with the efficiency of the ground organisations.

The interest of sound business alone requires that the chances of preventible accidents and near accidents should be eliminated as far as can be done at the present development of the art.

International Complications.

It is further passing strange, most passing strange indeed that a company assigns to passengers bound for Holland an airplane of a nationality which does not wear the registry letters called for by the International Regulations and which in the bargain is not allowed to land in certain territory on the way. We learned later, to our sorrow, that if a German 'plane finds itself forced to alight in Belgium it gets into difficulties there.

Even assuming that chances for engine trouble, etc., were small, which with the present equipment of most commercial airlines by no means can be said to be, there still remains the one possibility that a German 'plane flying for the I.A. may have to go down in Belgium. In view of the stressed relations between those two countries, the Company is not from a passenger's point of view, justified in substituting, even for once, a German 'plane for one of its own, thereby counting on good luck and the help of Heaven to get it safely beyond the closed areas.

According to our particular pilot, a German 'plane has to

R·A·F· TYPES — No 3.



THE FAIREY III.D. SEAPLANE.

Of the many types of aircraft which the Fairey Aviation Company have in service with the R.A.F. the III.D. Seaplane is perhaps the best known.

Ever since 1917 when the forerunner of this type was first produced as the FAIREY III. it has been steadily increasing in popularity with the R.A.F. until at the present time it is the most used and most dependable seaplane in the Service.

FAIREY AIRCRAFT

THE FAIREY AVIATION COMPANY, LTD.

HAYES, MIDDLESEX. HAMBLE, Nr. SOUTHAMPTON.

keep off the Belgian coast at a distance of at least 10 kms. and to fly at an altitude of not less than 500 m. If that is so, then a pilot must on days of low visibility take the risks of navigating by compass only, an unsafe way always and particularly so over this coast.

I think that it has already been sufficiently underlined that passengers should not be exposed to possible accidents. Furthermore, when a Dornier is in question, there is this point also to be considered, any forced landing has of necessity to be "dry." It sinks in water like a stone. [Not because of its all-metal construction, as such, but presumably because it is not designed to be water-tight.—C. G. G.]

ENEMY TERRITORY.

Our own forced landing was fortunately dry. It happened over Ostend. The pilot headed for the landing field of Ostend but changed his mind and put us down on the beach north of Middlekirk. The propellor and a few radiator connections broke in landing which was, in view of the somewhat difficult conditions, merely a trifle.

It was by now 10.15. It rained. The place was rather uninhabited. The police came out. The hubbub that arose was due to the fact that the police did not know what to do with this German 'plane and its German pilots that suddenly had dropped in on Belgian territory. And it remained in this state of ignorance and consternation until it had gotten hold of some "instruction-litterature" from the nearby town. By which time it was 13.12.

In the meanwhile it talked abundantly and strongly about arresting us all. As it was beastly cold and eminently disagreeable on that rainy beach, our temper suffered considerably; else no doubt, the quaint suspicion of the police about the eventual belligerent purposes of the machine's Very pistol and its ammunition would have made us rather gay.

A man, apparently belonging to Imperial Airways, showed up, contemplated the wreck, declared his wish not to have anything to do with us, and walked away. As he was the only person invested with authority that appeared at all, we concluded that at least on this particular Imperial Airways field, there was no representative of the Company who was in a position to help passengers out of a mess brewed for them by the Company itself.

One charitable soul from the field did, however, lend us a helping hand on his own account, because, as he said, he did not like to see English-speaking people in trouble. I think it was largely thanks to his offices as interpreter that we were finally, at 14.12, allowed to leave the beach. That is, we passengers. They kept the pilot.

We boarded a train of sorts in Ostend and arrived in Amsterdam at 23.39, that is 12 hours 24 minutes late.

I believe that it is unnecessary to draw any conclusions. The experiences a commercial air line inflicts on its passengers are in mild cases comical. In others one might claim them to be nothing short of outrageous, as few people see the fun of being treated as suspected individuals in a strange country.

As, however, the purpose of an air transport company is not to contribute to the gaiety of travellers, nor to cause inoffensive individuals to be subjected to rather insulting investigations on deserted shores, one might venture to state that such a company falls short of its aim.

AIR AFFAIRS IN PARLIAMENT.

IMPERIAL AIRWAYS.

In the House of Commons on Aug. 6,—

Sir F. Hall asked the Secretary of State for Air what services are now being flown by British Imperial Airways; whether the company have discontinued any and, if so, what services; whether they have in contemplation the cessation of other services, and what is the number of efficient machines now operated by the company; and whether any and, if so, what payments are made to them by the Government?

The Secretary of State for Air (Sir Samuel Hoare): As regards the first part of the question, services are in operation between London and the following cities, namely: Paris, Zurich (via Paris and Basle); Cologne (direct); Cologne (via Brussels); Ostend and Amsterdam. As regards the second part, the Southampton-Guernsey and Amsterdam-Berlin services have been discontinued, but the former service will shortly be resumed. As regards the third part, so far as I am aware the company do not propose to discontinue any other services. As regards the fourth part, there are 12 efficient machines in operation excluding experimental machines under test for the Air Ministry. As regards the last part, payments are made to the company in accordance with the agreement scheduled to that concluded in December, 1923, with the British, Foreign and Colonial Corporation, Limited, and then published as a White Paper.

Sir F. Hall: Is it a fact that the Imperial Airways have only 12 efficient machines to carry out the whole of the work of civil aviation in this country?

Sir S. Hoare: Yes, that is exactly the question put by my hon. and gallant Friend, and my answer mentioned 12 machines. There are other machines under construction.

Sir F. Hall: For the Imperial Airways?

Sir S. Hoare: Yes.

[It would be interesting to know how many of these twelve have been serviceable recently and why, if the twelve have been serviceable, only a very small percentage have been in use when there has been enough traffic on the French Air Lines to carry over 400 passengers weekly between London and Paris.—ED.]

A New Safety Device.

An extremely ingenious device, known as the Savage-Bramson Anti-Stall Gear, is now being marketed by the British Instrument Co. Ltd., of which Major Jack Savage is the moving spirit. It is hoped to give a full and complete description of this gear in an early issue of THE AEROPLANE, together with impressions obtained from actual tests with a machine so fitted.

Very briefly this anti-stall gear is a device for exerting a slight forward pressure on the joy-stick before the machine has reached stalling point. The pressure is just a reminder, and while it is sufficient to push the stick forward and stop the stall, it can easily be overcome by the pilot should he wish to stall the machine, such as in a fight with another machine, when the pressure would make very little difference.

It is actuated by a vane placed on the wing, which, just before the machine stalls, releases compressed air which causes this pressure on the stick. It should be understood that this anti-stall gear is purely and simply a reminder to the pilot and does not in any way coerce him.

There are numerous devices which have been tested by the R.A.E. at Farnborough, among them being a device which just as the pilot is about to stall blows a Klaxon in his ear to remind him. Personally one is under the impression that this is just as likely to make him push the stick back from sheer fright and so completely stall the machine, as to make him push it forward.

The Savage-Bramson gear would probably save a machine from a severe smash if the pilot was disabled or unconscious, whereas the aural and visual anti-stall gears would not help at all. The gear was invented by Mr. Bramson, the well-known sky-writing pilot, and it was to be seen at Lympne on the S.E.5a which Mr. Tait-Cox was flying there.

"The Man with a Load of Mischief."

The following letter appeared in *The Morning Post* on Aug. 10, under the heading of "Air Ministry Extravagance":—

Sir,—I have the honour to point out that in your issue of July 21 your Special Correspondent reproves the Air Ministry for their extravagance as displayed in the buildings erected at Cardington in 1917.

Your Correspondent is beating the wrong horse, as I know, because I was responsible for the coming into being of the Air Ministry in April of the following year, 1918.

The buildings in question were designed and built by another Government Department before the birth of the Air Ministry, but bequeathed by the former to the Air Ministry as a birthday present.

Yours, etc.,

MARK KERR, Admiral.

19, Draycott Avenue, Chelsea, S.W.,
Aug. 7.

A Flight to the Cape.

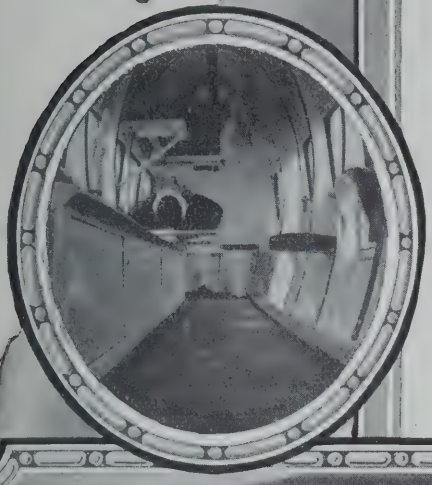
Mr. Alan J. Cobham hopes to start on a flight to Cape Town and back late this year. His machine will probably be a D.H.50 and the engine will be a Jaguar. Funds are urgently required, as the expenses of the flight are considerable. Any money subscribed will be well spent, and Mr. Cobham may be relied on to give British Aviation yet another good and much-needed advertisement.

One would have thought that it would have been well worth it for Imperial Airways Ltd. to subscribe the whole amount necessary, as, after all, they will largely reap the reward, and, anyway, the success of Mr. Cobham's flight to Burma alone should be sufficient to ensure getting the necessary money for the asking, if there is any enterprise among British Aviation people.

A New Duration Record.

Messieurs Drouhin and Landry, the well-known French pilots, have created another duration record. They left Chartres Aerodrome on Friday at 05.50 hours, and landed at 02.45 hours on Sunday morning, having been in the air over 43 hours. The machine was a Farman Goliath single-engined machine, and it carried 932 galls. of petrol and 44 galls. of oil. The machine followed a course of 100 km. between Chartres and Etamps. They covered a distance of 2,734 miles, thus beating the 2,516 miles made by Messrs. Kelly and Macready, in America.

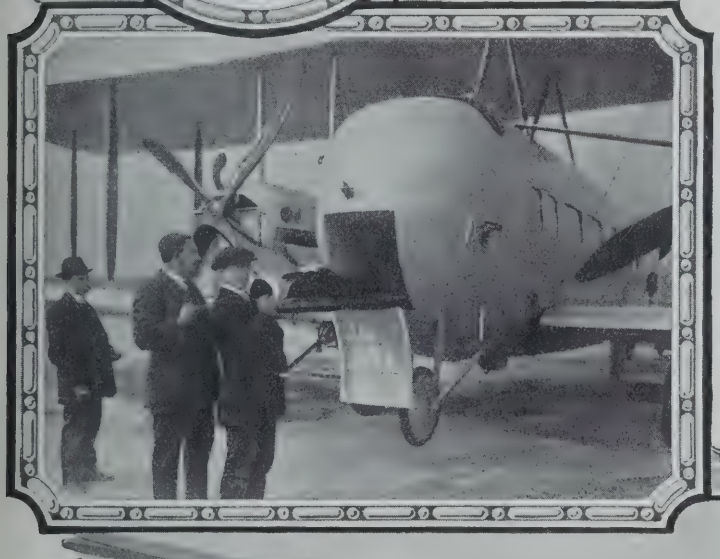
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Fitted with twin 450 H.P. Napier "Lion" engines the "VIMY has accommodation for a crew of 2 and Doctor, Nurse and 4 stretcher cases or 8 "sitting up" cases.

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THE ROYAL AIR FORCE.

The London Gazette.

July 21.

General Duties Branch.—The following are granted S.S. comns. as Flg. Offs. with effect from and with seniority of the dates indicated:—T. B. Fenwick (July 9); A. S. M. Meyrick-Jones (July 14).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—J. A. Mollison (Feb. 14); D. L. Thomson (Feb. 15); G. C. A. Armstrong, E. S. C. Davis, M. D. Ommanney, R. B. H. Jackson, H. M. Groves, J. H. Hutchinson (June 19).

Plt. Off. J. L. F. Fuller-Good is promoted to the rank of Flg. Off. with effect from June 19, and with seniority of Feb. 15; Plt. Off. H. R. F. Baxter is restored to full pay from half-pay (June 26); Plt. Off. A. H. Montgomery takes rank and seniority from May 14, and not as stated in *Gazette* of July 7; Sq. Ldr. C. H. Hayward is placed on the retired list at his own request (July 22); Plt. Off. R. C. L. Limbert resigns his S.S. comn. (July 23); Flg. Off. H. Aldridge (Lt., E. Surrey Regt.) relinquishes his temp. comn. on return to Army duty (July 7); Flg. Off. R. W. H. Cook (Lt., R.A.) relinquishes his temp. comn. on resigning his comn. in the Army (July 20).

Medical Branch.—Flt. Lt. E. N. H. Gray, D.P.H., is promoted to the rank of Sq. Ldr. (July 21); Flg. Off. G. Clark, M.B., is transferred to the Reserve, Class D.2 (July 19).

Reserve of Air Force Officers.—The following are granted comns. as Plt. Offs. on probation, General Duties Branch (July 21):—Class A.—L. O. Moss, M.M. Class B.—H. A. Record. The following are confirmed in rank:—Flg. Offs.—L. F. Ashley (June 30), B. P. B. Carter D.F.C. (July 3), Lord E. A. Grosvenor (July 20), A. H. P. Pehrson (July 20). Plt. Offs.—E. H. Bird (June 16), W. R. W. Kelly (July 1), A. A. C. N. Smith (July 20), A. B. H. Youell (July 20).

Memorandum.—The permission granted to Lt. L. J. Llewelyn to retain his rank is withdrawn on his enlistment in the Army (June 30).

Aug. 4.

General Duties Branch.—Flt. Lt. H. J. Roach, A.F.C., is granted a perm. comn. in the rank stated (Aug. 5); G. V. Thorpe Thomson is granted a S.S. comn. as a Flg. Off. with effect from, and with seniority of, July 27.

The following Plt. Offs. are promoted to the rank of Flg. Off.:—D. C. Burnley, R. F. de R. Read, L. R. Shaw, C. N. A. B. Mumby (May 15); R. E. Slacke (June 15); N. W. F. Mason (June 19); V. A. C. Ross, T. A. Hale-Munro (July 10); W. Wynter-Morgan, M.C. (Capt., 5th Bn. Glos. R., T.A.) (Aug. 4). Flg. Off. E. V. Major (Lt., R.N., rtd.) is granted the hon. rank of Flt. Lt. (July 6).

Air Vice-Marshal Sir I. L. B. Vesey, K.B.E., C.B., C.M.G., D.S.O. (Col., temp Maj.-Gen., Army), is re-seconded for two years' duty with the R.A.F. (Aug. 1).

Flg. Off. R. V. Bramwell-Davis (Lt., R.A.) is re-seconded for a further year's duty with the R.A.F. (Aug. 1). Flt. Lt. W. E. Reason ceases to be seconded for duty with the Union of South Africa Government (July 13). Flg. Off. A. F. McC. Riggs, M.C. (Lt., York. L. Infy., retd.), resigns his S.S. comn. (Aug. 5).

Stores Branch.—Flg. Off. J. Mahoney is placed on the retired list (Aug. 1).

Medical Branch.—Sq. Ldr. H. Harvey is transferred to the Reserve, Class D.2 (Aug. 1).

Reserve of Air Force Officers.—The following are granted comns. on probation in Class A, General Duties Branch, in the ranks stated (Aug. 4):—Flg. Offs.—D. H. Drew, A.F.C., C. S. Kent, A. R. Latham, W. Ledlie. Plt. Offs.—F. M. Brownlee, R. W. Cawston.

A. B. Roche is granted a comn. in Class B, General Duties Branch, as a Plt. Off. on probation (Aug. 4). L. B. Clarke is granted a comn. in Class C, General Duties Branch, as a Plt. Off. (Aug. 4).

The following Flg. Off. are promoted to the rank of Flt. Lt. (Aug. 4):—L. P. Openshaw, B. A. Trechmann, F. J. Bailey, R. Y. Bush.

The following Flg. Offs. resign their comns.:—R. C. Crawley (July 5); H. D. Humphreys (July 26).

Flt. Lt. H. B. Pett, M.C., is transferred from Class C to Class A (Aug. 4). Plt. Off. J. S. Charlton is removed from the Service (July 24).

Appointments.

The following appointments were made by the Admiralty on July 22:—

Lieuts. (Flg. Off., R.A.F.).—H. L. St. J. Fancourt, R. A. Peyton, and E. E. Blackwell, to *Eagle*, and for 422 Flight (July 18).

Royal Marines.—Capt. (Flg. Off., R.A.F.).—E. J. O. Ellison, to *Eagle*, and for 422 Flight (July 18).

Royal Air Force.—Flg. Off.—G. A. R. Muschamp, to *Eagle*, for technical engine duties (July 16).

Week ending Aug. 10.

General Duties Branch.—Group Captain U. J. D. Bourke, C.M.G., to Air Ministry, 31/7, for duty as R.A.F. Representative on Board of Management of N.A.A.F.I.

Wing Commanders C. Fraser, C.M.G., O.B.E., M.C., to R.A.F. Depot, Uxbridge, pending return to Army, 31/7. R. J. Mounsey, O.B.E., to M.T. Repair Depot, Shrewsbury, pending taking over command, 27/7. R. B. Maycock, O.B.E., to Marine Aircraft Exper. Estab., Felixstowe, pending taking over command, 3/8.

Squadron Leaders D. E. Stodart, D.S.O., D.F.C., to R.A.F. Depot on transfer to Home Estab., 28/6. F. J. Vincent, D.F.C., to No. 56 Sqdn., Biggin Hill, 11/8. F. R. Alford, to R.A.F. Depot, Uxbridge, 4/8.

Flight Lieutenants W. H. Dunn, D.S.C., to No. 4 Sqdn., S. Farnborough, 11/8. W. E. Somervell, A.F.C., to No. 4 Sqdn., S. Farnborough, 11/8. E. R. B. Playford, to School of Army Co-operation, Old Sarum, 11/8. A. W. Clemson, O.B.E., D.S.C., to R.A.F. Depot on transfer to Home Estab., 28/6. E. B. Grenfell, A.F.C., to Armament and Gunnery School, Eastchurch, 24/8. N. Keeble, D.S.C., D.F.C., to Electrical and Wireless School, Flowerdown, 20/8.

Flying Officers B. P. Jones, to R.A.F. Depot on transfer to Home Estab., 4/7. E. C. Moon, to R.A.F. Depot on transfer to Home Estab., 6/5. B. G. Pool, to R.A.F. Depot on transfer to Home Estab., 29/7. A. W. Henderson, to No. 216 Sqdn., Egypt, 21/6. G. R. Burge, to R.A.F. Depot, Uxbridge, 21/7. S. McKeevor, to No. 1 Wing H.Q., S. Farnborough, 5/8. F. S. Henderson, to Record Office, Ruislip, 6/8. G. L. Ormerod and C. D. Palmer, to Armament and Gunnery School, Eastchurch, 24/8. G. V. T. Thomson, to R.A.F. Depot, Uxbridge, on appointment to S.S. comn., 27/7. E. Brewerton, D.F.C., to R.A.F. Training Base, Leuchars, 4/8. H. N. V. Le V. Noel, D.F.C., to R.A.F. Training Base, Leuchars, 15/7.

Medical Branch.—Flying Officer T. W. Wilson, to Aeroplane and Armament Expertl. Estab., Martlesham, 4/8.

Stores Branch.—Flying Officers C. P. Wingfield, to Electrical and Wireless School, Flowerdown, 27/7. R. M. Taylor, M.C., to School of Photography, S. Farnborough, 27/7. C. W. H. Moller, to No. 1 F.T.S., Netheravon, 27/7. J. F. Young, M.M., to No. 29 Sqdn., Duxford, 27/7. F. H. Bedford, M.C., M.M., to Aeroplane and Armament Expertl. Estab., Martlesham, 27/7.

Pilot Officers B. W. Hemsley, to R.A.F. Base, Gosport, 27/7. St. J. F. Wintour, to I.A.A.D., Henlow, 27/7.

Accountant Branch.—Flight Lieutenant H. J. Gilbert, to School of T.T. (Men), Manston, 4/8. Flying Officer R. G. Dyer, to No. 12 Sqdn., Andover, 11/8.

Royal Air Force Cadetships.

The Air Ministry announces:—

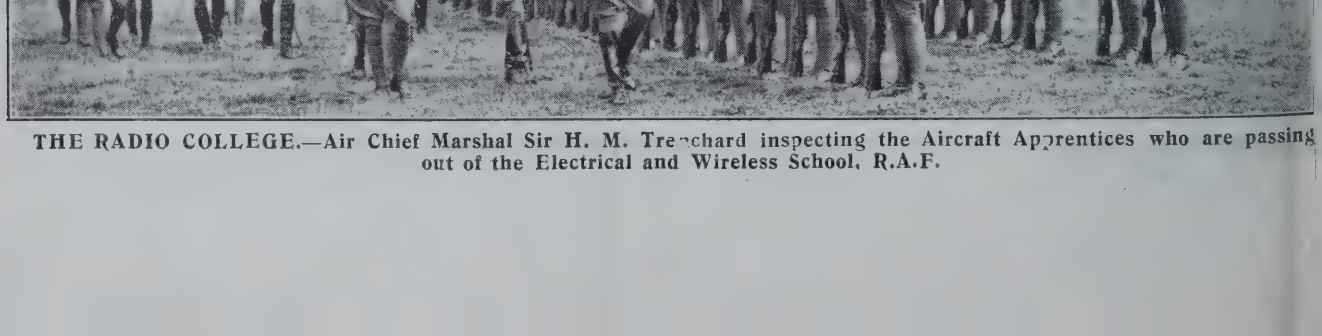
The next examination of candidates for entry as flight cadets to the Royal Air Force Cadet College, Cranwell, in January, 1926, will begin on Nov. 17. On this occasion not less than 35 cadetships will be offered. Forms of entry which can be obtained from the Secretary, Civil Service Commission, Burlington Gardens, W.1, will not be accepted, in any circumstances, later than Sept. 17.

Candidates, who should be medically fit and be between the ages of 17½ and 19½, will, with the exception of those nominated by the Air Council on the recommendation of Headmasters, be required to produce school certificates A or B, obtained by passing certain specified examinations. For this examination candidates who can show that for sufficient reason they have been prevented from obtaining school certificates may be allowed to compete at the discretion of the Air Council.

The examination is, in the main, a written one, which is held in London and at various other centres, but each candidate must also attend an Interview Board at the Civil Service Commission.

Successful candidates, after passing the Royal Air Force Medical Board, undergo a two years' course at the College where in addition to continuing their general education, they receive a thorough training in all questions concerning military aviation and cognate subjects, and also graduate as service pilots following a lengthy period of flying training from skilled instructors.

The expansion of the Royal Air Force in accordance with the Home Defence Scheme makes it necessary to obtain a considerably increased number of candidates for cadetships. The Air Ministry therefore desire to call attention to the career which the Royal Air Force offers. On passing successfully out of Cranwell flight cadets are granted permanent commissions. They have before them a life career with good prospects of rising by their own efforts to the highest ranks. There is no question of their compulsory retirement on the ground



THE RADIO COLLEGE.—Air Chief Marshal Sir H. M. Trenchard inspecting the Aircraft Apprentices who are passing out of the Electrical and Wireless School, R.A.F.

The D.H. Type 54

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650 H.P. ROLLS' ROYCE "CONDOR"
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that they have become too old for service as pilots. The work offers great scope both in its military and in its technical aspects to young men of ability, and facilities are given to officers to specialise in aeronautical engineering, wireless telegraphy, aerial gunnery and other subjects.

The total cost to a parent of putting his son into the Royal Air Force through Cranwell is about £250 for the two years' course. For flight cadets who are successful in obtaining prize cadetships or who are eligible for reductions in fees in respect of their father's service in the fighting forces the total cost of the two years' training is considerably less.

On first commissioning as Pilot Officers at the age of 20 or 21, officers receive total emoluments amounting at present rates to about £450 a year and need no further assistance from their parents. After 18 months' service they become eligible for promotion to the rank of Flying Officer with substantially increased rates of pay, the total emoluments at present rate being about £540.

The Air Ministry considers that the career offered by the Air Force compares very favourably with that offered by any other profession and they desire to emphasise that to take advantage of that career it is quite unnecessary to be possesssed of private means. The expenses in Royal Air Force messes are strictly limited and officers even of the most junior rank have no difficulty in living on their pay.

Full details as to entry into Cranwell are contained in Air Publication 121, "Regulations for admission to the Royal Air Force Cadet College" (price 6d. net) and more general information as to the career offered by the Royal Air Force is provided in an official handbook entitled "The Royal Air Force as a Career" (price 3s.). These publications can be obtained through any bookseller or direct from H. M. Stationery Office, Kingsway, W.C.2.

Apprenticeships in the Royal Air Force.

The Air Ministry announces:—

Seven hundred aircraft apprentices, between the ages of 15 and 16½ are required by the Royal Air Force for entry to the Aircraft Apprentice School at Halton, Bucks, in January next. These apprentices, who must be well educated and physically fit, will be engaged as the result of two examinations, one an *Open* competition conducted by the Civil Service Commissioners, and the other by a *Limited* competition carried out by the Air Ministry in conjunction with the local education authorities throughout the country. Boys accepted for employment will be attested as airmen and will engage to complete a period of 12 years' service on the active list of the Royal Air Force, the period commencing to run from the date of their attaining 18 years. On completion of their active list service they will be discharged to civil life or may be allowed to re-engage to complete 24 years' service for pension. Normally their duties are carried out on the ground in the technical workshops of the Air Force.

The aircraft apprentice scheme was inaugurated in 1920 with a view to the Royal Air Force training boys of good education for service as skilled craftsmen in its own well equipped technical schools. Since then approximately 2,000 boys have completed their training and are now at work in service squadrons both at home and abroad, contributing substantially to the efficiency and reliability of the ground organisation of the Air Force. So successful has the scheme been that approximately 3,000 boys are now regularly undergoing training, a tribute to the popularity of this new opening for boys.

Application to sit in the *Open* competition must be made to the Secretary, Civil Service Commission, Burlington Gardens, W.1, not later than Sept. 3. Applications on behalf of the sons of officers and senior N.C.O.s of the three services to be nominated to sit at this examination must be submitted to the Secretary, Air Ministry, London, not later than Aug. 21.

Candidates for the *Limited* examination, should make application, if they are still at school, to their Headmasters with a view to securing a nomination from the education authority responsible for the school. If they have left school application should be made to the Advisory Committee for Juvenile Employment in their area, while boy scouts can also apply to the authorities of the Boy Scout Association, and territorial cadets to the Officer Commanding their units. There is no fee for this examination which is carried out at schools in each area where boys are nominated. Applications to attend this competition must be received by the Air Ministry from the education authorities or other nominating bodies by Oct. 6. Candidates should therefore apply to their Headmaster for the necessary nomination well before that date.

The syllabus for both examinations consists of mathematics, experimental science, English and a general paper, and has been designed to be suitable for boys still at school and following a normal source of instruction.

When appointed as aircraft apprentices boys are given three years' training by technical instructors in a skilled trade and general education by civilian schoolmasters up to the standard of a good technical school. After they pass from the apprentice training school, special educational facilities are afforded them to continue both their technical and general education, so that when they eventually leave the service they are well equipped to follow a trade in civil life.

The principal trades open to boys, who are invited in advance to indicate their preference, are carpenter-rigger, aero-engine fitter and wireless operator mechanic. In assigning boys to these trades every endeavour is made to give effect to each boy's individual preference, the wishes of the boys in this respect being considered in the order of their position on the examination list.

During the period of training there is careful supervision of health and general welfare, medical attendance, religious instruction from the chaplains of several denominations, and recreation facilities. The housing conditions and food are good. Six weeks annual leave is granted.

Pay is given, under existing regulations, at 1s. 6d. a day until the age of 18 and then at 3s. a day until the course is completed, which enables the apprentice to be self-supporting from the time he leaves home. At the end of the course the aircraft apprentice sits a passing out examination for promotion to the rank of leading aircraftsman with pay varying from 5s. 2d. to 5s. 6d. per day. Those boys who do not qualify for the highest grade will be appointed as aircraftsmen with slightly lower commencing rates of pay. The present rates of pay of apprentices and airmen may be subject to revision in the immediate future.

A small number of the leading apprentices are sent on completion of their course to the Royal Air Force Cadet College for training as commissioned officers. Others are given an advanced course and are eventually appointed N.C.O.s with the rank of Corporal. There is also a reasonable chance of selection from volunteers for a further number to qualify later in flying to become airmen pilots, with the rank of Serjeant.

Headmasters, Parents and others interested in the scheme can obtain copies of the regulations for entry (A.P.134) on application to the Secretary (M.1.), Air Ministry, Kingsway, W.C.2, together with an illustrated pamphlet describing the life of an apprentice.

The R.A.F. Cadet College.

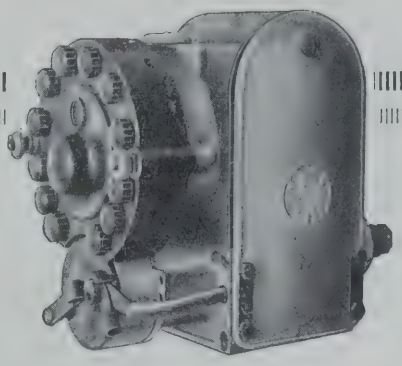
The following are declared by the Civil Service Commissioners to be the successful candidates at the competition held in June last for admission to the R.A.F. Cadet College, Cranwell. Their admission is conditional on their having passed a medical examination. The names are in order of



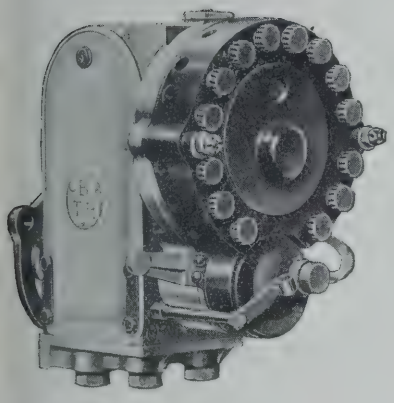
AT CRANWELL.—Sir Philip Sassoon, Under-Secretary of State for Air, inspecting the Officer Cadets.

B T-H

Aero-Magnetos



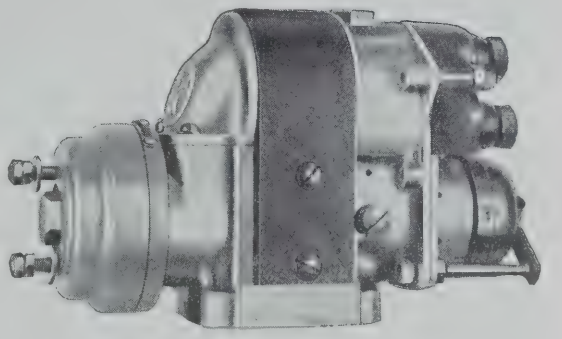
12 Cylinder Magneto.



14 Cylinder Magneto.

B.T.H. Magnetos have gained universal esteem due to their extremely reliable operation under all conditions. The perfect design and workmanship incorporated in these magnetos has assisted in creating many world's records, in the air, on track and road, for aeroplanes, cars and motor cycles.

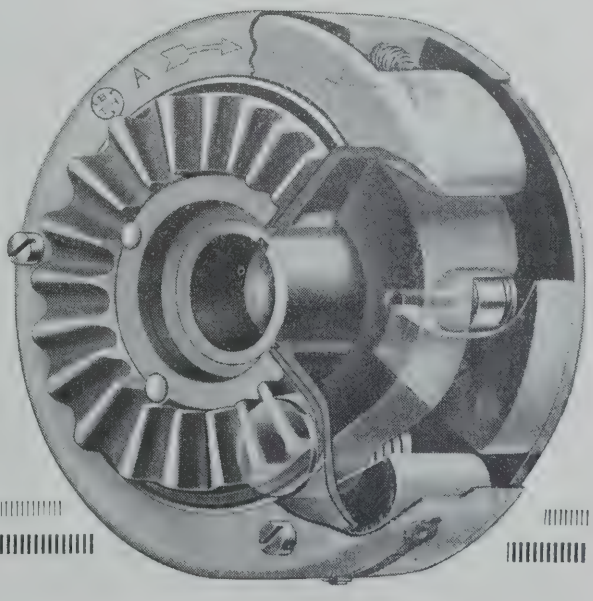
To the many world's records obtained by machines fitted with B.T.H. Magnetos must be noted the wonderful flight from Croydon to Zurich and back, a distance of over 1,000 miles, flown in less than 14 hours by Mr. Alan Cobham on a D.H. Moth, the Cirrus engine of which is fitted with a B.T.H. Magneto and Impulse Starter.



4 Cylinder Magneto with Impulse Starter.

Automatic Ignition Timing Device.

By fitting an extremely simple mechanism, introduced by this Company, the timing range may be increased by 30° and the ignition automatically varied in accordance with the speed of the engine. This mechanism, which is of very robust construction, may be fitted with ease to any existing magneto, and can be adjusted to suit the particular characteristics of any type of engine.



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merit and a table of marks will be sent to each candidate as soon as possible :—

Louden, J. A. H., Obard, R. W., Ricks, F. J., Boyce, C. D. C., Gillan, J. W., Worthington, F. R., Kersley, J. A., Turner, C. H., Coates, P. U., Owen, D. G. M., Charleton, H. W. D., Denton, K. K., Hill, E. J., Butler, W. D., Vyner-Ellis, W. G., Pearson, A. C.

A Fatal Accident.

The Air Ministry regrets to announce that as a result of an accident at Hinaidi, Iraq, to a D.H.9a of No. 55 Sqdn., Hinaidi, on Aug. 5, No. 355635 Serjeant John Reginald Gage, the pilot of the aircraft, and No. 353435 L-AC. Francis Young were killed.

The Chief of the Air Staff at Flowerdown.

Air Chief Marshal Sir Hugh Trenchard visited the Electrical and Wireless School, Flowerdown, on Aug. 7. He inspected the Aircraft Apprentices belonging to the September, 1922, class who are now passing out. Of the 37 Apprentices who pass out this year 10 have been classified as Leading Aircraftsmen, 18 as First Class Aircraftsmen, and 9 as Second Class Aircraftsmen. AA. L. P. Moore was selected for the offer of a Cadetship.

After the inspection Sir Hugh Trenchard presented prizes to a number of Apprentices. In the course of a few remarks to the assembled personnel of the School he said that the development of the R.A.F. as an economical, successful and efficient means of protecting the Empire was largely dependent upon the development of wireless. The age now beginning was going to be an electrical age and wireless would be one of its more important factors.

He was very interested to note that all the Apprentices had volunteered as pilots. It might not be possible for all of them to become pilots, but he hoped that those who did so would not neglect their trade.

The Mannock Memorial.

On July 18 a memorial tablet was unveiled in Canterbury Cathedral to Major Edward Mannock, V.C., who was killed on July 18, 1917, in a fight over the German trenches. In addition to the Victoria Cross, his awards included the D.S.O. and two bars, and the M.C. and one bar.

Over 1,500 people were present and the unveiling, which was performed by Group Capt. P. L. W. Herbert, C.M.G., C.B.E. Detachments of the Territorial Army and of the Church Lads' Brigade, and representatives of sporting and social clubs with which Major Mannock was identified in Canterbury were present. The Mayor, Sheriff, and members of the Canterbury Corporation were also present. The family was represented by Mr. P. Mannock, a brother.

Alderman Wright Hunt, chairman of the Canterbury War Memorial Committee, offered the memorial for acceptance by the Dean and Chapter. Group Capt. Herbert, after unveiling the memorial tablet, read the words in which Major Mannock was "gazetted" for his Victoria Cross. The Dean of Canterbury in accepting the custody of the memorial, said that the Chapter were gratified at having the opportunity of testifying to the courage, stedfastness, and devotion of the airmen who served their country right through the war; and they were also pleased to find that memorial in their walls because of its special connection with the city of Canterbury.

The Fleet Air Arm.

The Times of Aug. 3 states :—

The Admiralty announce that a limited number of volunteers is required from the wireless branch of the Navy for duty as operators and aerial gunners in aircraft of the Fleet Air Arm. Accepted candidates will be required to undergo a course of training in aircraft W/T sets and in aerial gunnery. Extra pay of 1s. a day during preliminary training, and thereafter 2s. a day continuously whilst detailed, is given. Applications, with copies of certificates, are to be sent to the Signal School, Portsmouth, at the earliest possible date. Men who have volunteered on previous occassions may apply again. The last call of this kind was made in August, 1924.

The Post-War R.A.F. Iraq Dinner.

The first post-War R.A.F. Iraq Dinner took place at the Holborn Restaurant on June 27, the evening of the Royal Air Force Display, there being one hundred and eleven diners present.

Air Marshal Sir John M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O., was in the chair and Air Commodore A. E. Borton, C.B., C.M.G., D.S.O., A.F.C., was vice-chairman.

After the usual Loyal Toast, Air Commodore Borton proposed the health of Sir John Salmond, appreciative of the way in which Sir John had met and overcome the many difficulties attendant upon the assumption of an entirely new post in a strange land.

The Air Marshal replied by congratulating Air Commodore Borton upon the way in which he and his staff had prepared the way for his taking over control of the Combined Services in Iraq and expressed his gratefulness for the great help he had received from all, not only upon assuming command, but throughout his tenure of office.

He congratulated the Royal Air Force upon its achievements in Iraq and the great name it was making for itself in that land. Sir John ended by proposing that they should send a message of encouragement and good wishes to those in Iraq upon the occasion of the first re-union dinner.

Group Capt. W. F. MacNeece delivered a witty speech in which he congratulated the Dinner Committee upon the success of the evening.

Among those present were :—Air Marshal Sir John Maitland Salmond, Air Commodores A. E. Borton and A. M. Longmore, Group Capts. E. F. Briggs, P. F. M. Fellowes, A. Fletcher, W. F. MacNeece, and H. Cooper, Wing Commanders Bradley, Cunningham, Allen, Murray, Rees, Smith, Robinson and Crawford, Sq. Leaders. Gaskell-Blackburn, Engand, Nichols, Tucker, Saul, Pettingell, Rice, Harris, Williamson, Butler, Bowman, Maxwell, Collishaw, Mackay, Smart, Peck, Williams, Leacroft, Thorold and Lees.

No. 55 Squadron Re-union Dinner.

The Annual Re-Union Dinner of No. 55 Squadron will be held at Oddennino's Restaurant on Saturday, Aug. 8, at 19.30 hours for 20.00 hours.

Wing Cdr. J. E. A. Baldwin, D.S.O., O.B.E., who formed the original Squadron at Lilbourne, and is now home from Iraq, will be present. The organisers of the Re-Union hope that as many former members of the Squadron as possible will attend to support Wing Cdr. Baldwin.

Full particulars and tickets may be had from Sq. Ldr. C. H. Nicholas, D.F.C., A.F.C., Organiser of No. 55 Sqdn. Re-Union Dinner, The R.A.F. Staff College, Andover, Hants.

No. 20 Squadron 4th Re-union.

A small but cheery gathering took place on Saturday evening, July 25, at Oddennino's, when a "baker's dozen" of those who served with No. 20—chiefly in 1917—met to celebrate those wonderful days.

Major W. H. C. Mansfield, D.S.O., presided, and having proposed the toasts of "King," the "Silent" toast, and "No. 20 Squadron, Past and Present," he read telegrams of regret from several unable to attend. Capt. H. L. Satchell's toast, "The Major," was enthusiastically received.

A cablegram of good wishes to No. 20 in India was subscribed to, and it was decided that the Reunion must be an annual event, to be held every Derby Day.

Will all past and present members of No. 20, desirous of attending, in future kindly send their names and addresses and rank, to T. A. M. Lewis, Postling, Nr. Hythe, Kent? A reminder will be sent a month ahead of the next event.

Inter-Service Lawn Tennis.

The Inter-Services Lawn Tennis Championship was played at Wimbledon on Aug. 7 and 8 and resulted in a win for the Army for the sixth consecutive time. They played twelve matches and won eleven. The Navy won five matches and the R.A.F. two.

In the Singles Sq. Ldr. Erskine-Lindop beat Surg.-Cdr. L. Darby (R.N.) 7—5, 6—1; and in the Doubles Flg. Off. Roupell and Flt. Lt. Duminy beat Lt.-Cdr. Glover and Lt.-Cdr. Packer (R.N.) 2—6, 6—1, 6—4.

On the second day Flg. Off. Roupell was defeated by Lt.-Cdr. Glover, R.N., 6—4, 8—6, and Lt.-Col. Berger and Capt. Knox (Army) beat Flg. Off. Roupell and Flt. Lt. Duminy 6—3, 6—2.

The Boys' Wing, Cranwell, Sports.

The Finals of the Boys' Wing Annual Sports were held at Cranwell on July 25, a number of events having been decided on July 22.

The winners of the various events were as follows :—

880 yards (Senior) : Weaitt (2 min. 13 2-5 sec.). 880 yards (Junior) : Tipple (2 min. 17 sec.).

100 yards final (Senior) : Worstall (10 3-5 sec.). 100 yards final (Junior) : Roberts (11 1-5 sec.).

440 yards final (Senior) : Thomas (54 1-5 sec.). 440 yards final (Junior) : Williams (57 3-5 sec.). 440 yards relay : No. 1 Sqdn., Farmer Rayment, Dennis and Heppell (49 3-5 sec.).

Tug-of-War (Senior) : No. 3 Sqdn. Tug-of-War (Junior) : No. Sqdn.

High Jump : Allen (5 ft. 4 in.). Long Jump : Allen (19 ft. 2 in.) Obstacle Race : Rumins.

220 yards final (Senior) : Worstall (24 3-5 sec.). 220 yards final (Junior) : Nunn (25 1-5 sec.).

One mile Invitation Relay : H.Q. Boys' Wing (3 min. 36 1-5 sec.). One mile Team final : No. 3 Sqdn., Willcox, Pretty, Smithson and Weaitt (4 min. 45 3-5 sec.). One mile Relay : No. 1 Sqdn., Thomas, Farmer Gubble and Jones (4 min. 47 2-5 sec.).

Two mile Cycle Race : Le Cheminetet (3 min. 46 4-5 sec.). Two mile Team Cycle Race : No. 2 Sqdn. Three-quarter mile Cycle Race Olivir.

120 yards Hurdles (Junior) : Benwell (18 4-5 sec.). 120 yards Hurdles (Senior) : Bishop (19 2-5 sec.). 360 yards Hurdles Relay : No. 3 Sqdn. McNama, Bishop and Coote.

Civilian Instructor's Race : Hayter. Band Race : Poole. 100 yard Invitation Race : Lemmings. Ex-Cranwellians' Race : Boon (Kenley). Consolation Race : Hambley.

Putting the Shot (Senior) : Benet (31 ft. 10¾ in.). Putting the Shot (Junior) : Shaw (30 ft. 7 in.).

General Zagoski's Tour.

The Times reports that six Polish military aeroplanes under the command of General Zagoski, Commander-in-Chief of the Polish Air Force, landed at the Aspern aerodrome near Vienna, on July 23, en route for Warsaw.

General Zagoski recently visited England on a French bi-plane, which he piloted himself from Paris. He returned thither accompanied by an R.A.F. officer as passenger, and is now on his way home.

The Polish Air Force is to be congratulated on having as its C.-in-C. an officer who is himself such a capable pilot and so good a sportsman as is General Zagoski.

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AIRCRAFT

16 years ago the Blackburn Company built its first aeroplane. To-day their seaplanes & aeroplanes have a world wide reputation for performance & endurance. A reputation obtained through sound engineering design, the highest standard of workmanship & rigid inspection.



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Aircraft fitted with the "Bristol"

CHERUB AIRCOOLED ENGI

again swept the board at the August Air Race Meeting at Lympne.

Aeroplanes fitted with this engine

WON 5 OUT OF 6 RAC

and in the remaining race "Bristol" Aeroplanes with "I Engines were Second and Third.

In the race for the Grosvenor Challenge Cup, th 2nd, 3rd, 4th and 5th machines had "Br Cherub Engines.

In the competitions for altitude and speed ov measured course, aeroplanes fitted with "Bris Cherub Engines

WON 3 OUT OF 4 EVEN

and in the remaining event a Cherub-engined machine was

The "Bristol" Aircooled Aero

THE BRISTOL AE

FILT

Telegrams—"Aviation, Bristol."

The Tribute of the Press—

"MORE SWEEPING THAN IN 1924.

It will be remembered that during last year's Aeroplane Competitions, at Lympne, the "Bristol" entries swept the board, but the successes this year are even more remarkable and they reflect very vividly the extraordinary reliability of the "Bristol" made products compared with those emanating from other manufacturing centres.....

The results of the Air Race Meeting at Lympne, during the week-end were once again a complete triumph for "Bristol" manufactures and it was abundantly proved that amongst light aeroplane engines there is no present-day rival to the "Bristol" Cherub."

Times and Echo, Aug. 6, 1925.

RECORD OF THE

"Bristol"

UCCESSES AT THE 1925 IR MEETING AT LYMPNE.

EVENT.	FINISHED.	AIRCRAFT.	ENGINE.
national Light plane Holiday Handicap.	FIRST	R.A.E. Aero Club Monoplane.	"BRISTOL" CHERUB
rnational Two r Light Aero- Scratch Speed Race.	FIRST	"Wee Bee" I	"BRISTOL" CHERUB
national Single r Light Aero- Scratch Speed Race.	FIRST	Cranwell Parasol Monoplane.	"BRISTOL" CHERUB
test Height in 0 minutes.	FIRST	"Wee Bee" I (8,180 ft.)	"BRISTOL" CHERUB
est Speed over 3 Kms.	FIRST	Cranwell Parasol Monoplane. (139·69 km/hr.	"BRISTOL" CHERUB
atest Height.	FIRST	"Wee Bee" I. (11,900 ft.)	"BRISTOL" CHERUB
ational Handicap.	SECOND	"Bristol" Lucifer Machine.	"BRISTOL" LUCIFER
do.	THIRD	"Bristol" Brownie.	"BRISTOL" CHERUB
enor Challenge Cup.	FIRST	R.A.E. Club Monoplane.	"BRISTOL" CHERUB
	SECOND	"Bristol" Brownie.	"BRISTOL" CHERUB
	THIRD	Cranwell Parasol Monoplane.	"BRISTOL" CHERUB
	FOURTH	"Wee Bee" I.	"BRISTOL" CHERUB
	FIFTH	Avio Avis.	"BRISTOL" CHERUB
vate Owners' Handicap.	FIRST	R.A.E. Club Monoplane.	"BRISTOL" CHERUB
do.	THIRD	Cranwell Parasol Monoplane.	"BRISTOL" CHERUB

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THE DEFENCE.

(A Story of the near future.)

By Observer Officer A. J. INSALL, late R.A.F.

I.

The Defender-in-Chief surveyed the relief-map beneath him with satisfaction. The last green pin-point of light had just appeared on the model, where, built into the space of a few square feet, stood as perfect a reproduction of a city as it was possible to conceive. The emerald glow which rose to the ceiling told him that the evacuation, as far as the inner suburbs, was complete.

The districts beyond would not be cleared for another few hours to come, but in their case it was only the birds of passage from the centre areas of the metropolis with whom they had to reckon; their legitimate occupants had been among the first to answer the Official Broadcaster's "Take Air Raid Action."

From Ealing as from Bromley, from Kingston as from Ilford and Walthamstow, the exodus had commenced simultaneously; like the ripples on the disturbed surface of a pond it had spread outwards to all points of the compass. There had been hitches, some trivial, some serious, but it had not taken long to overcome them.

When the first wave from Hackney had outreached its prearranged radiating centre and had become entangled with the tail of Ilford's contingent, people had whispered that disaster had overtaken the expedition, and panic threatened; the loud-speakers, which, from the fleet of small airships, told the 'bus and lorry drivers what to do and when to do it, provided instant relief and received the mute thanks of a myriad upturned faces.

It spoke volumes for the patient organisation of the defence staff that such a huge undertaking had been so successfully carried through, and a smile flickered across the Defender-in-Chief's face as he depressed a master-switch and extinguished the clustered green lights on the model. Then he turned towards a table further back on the daïs.

The Chief-of-Staff looked up as the Defender-in-Chief approached.

"Evacuation completed, Sir?"

"Yes,"—the Defender-in-Chief lowered himself into a chair and pulled out his cigarette case—"the last light took an eternity. I thought it was never going to show up!" He paused for a moment and then went on, "I suppose Mayfair is now taking tea in Hertfordshire. Can you picture 'Nose-Dive' Harcourt's face as he watches the Lady Jane crawl past on her way to her Evacuation Billet? Ha! Ha!"

The two occupants of the control platform smiled at the idea of the immaculate Harcourt, Air Officer Commanding the Northern Air Defence Area, witnessing the distressing spectacle of his ascetic and exclusive parent, travelling, by Hobson's choice, in the immediate company of the other even-number tenants of Seymour Street. For the evacuation rules gave but scant attention to the personal prejudices of the individual. Streets had to move as streets, one side at a time; the Limousine owner of No. 3 had no better claim to choice of vehicle than the owner-driver of No. 3A—both in fact in this instance being allotted to inside seats on a No. 38 omnibus.

A few minutes went by. The Chief-of-Staff, having finished the perusal of the papers in front of him was busy tidying his table. It was the Defender-in-Chief who broke the silence.

"The police reports still remain to come in. I think I will try to snatch a wink or two in the meantime."

He rose to his feet and his Chief-of-Staff followed suit. Together they moved to the edge of the daïs and looked down on the relief maps laid out on the floor below them. The Chief-of-Staff stood by a small desk which held a switchboard dotted with variously-coloured labels. "I think everybody is standing by now,"—he murmured, running his eye critically over the board, and, as though to check his statement, touching a switch here and there and glancing quickly at the map on the floor as he did so.

The first switch he moved, was labelled "*Eastern Aeroplane Defence Area,*" and, instantly, a straggling line of tiny blue lights sprang into existence on the floor where the model showed in perspective the southern half of Essex and the eastern portion of Kent.

The second switch was marked "*Aeroplane Lights,*" and a broken white line appeared encircling the capital; to the east it crossed the mouth of the Thames in the neighbourhood of Gravesend.

The third bore the word "*Belt*" below it; as it was depressed, London became girdled in a broad band of orange which ran through Epsom, Bexley, Chingford and Harrow.

The fourth, labelled "*Barrage,*" produced a second girdle outside the orange belt and inside the broken white circle—a girdle of fiery crimson.

"Try 'Salvage'."

The Defender-in-Chief spoke over his shoulder, taking his eye off the line of blue lights to the right and looking at the miniature London in the foreground. From ten points in the heart of the city a luminous half-inch cross flashed out as the hand on the switchboard paused at the little celluloid tab on which the words "*Central Salvage Sections*" were printed; then as the hand moved to an adjacent switch, similar closses lit up all over the map.

The kaleidoscopic glow from the floor cast a wierd incandescence to the ceiling. By it every detail of the room could be observed even to the rounded heads of the rivets, where, in the domed roof, they glistened wanly with a strange lustre.

II.

"Pass the marmalade, Soule, and take your elbow out of my coffee. Thanks! By the way, who was caterwauling in the bathroom this afternoon at four o'clock? I'll slay him if I find the culprit—the thoughtless devil!"

Flight Lieutenant O'Reilly conveyed a heavily-loaded piece of toast to his mouth and eyed his companion at the breakfast table suspiciously.

"Have not the least idea. *I* never heard anything. You need not look at me like that. I should not be having breakfast now if I had been tubbing at four, and if I do usually sing in my bath, I don't sing in my sleep. Ask the missus!"

O'Reilly, Officer Commanding "B" Flight of No. 509 (Night) Home Defence Squadron, grunted apologetically.

"All right. Sorry! I forgot you went down to hospital with Huxley this morning. It was probably young Bateman. At any rate, I am going to put a stop to this practice of noise-making when people are still asleep. It was nearly ten this morning before I was able to turn in, what with Huxley himself and his machine, and I was dog tired. By the way," he continued, in between hurried gulps of very hot coffee, "how is he?"

"Oh, going on well. They operated at midday, Dalmuir told me just now, and they think he is quite out of danger. Poor Huxley, he told me before he lost consciousness, that he had never experienced such a fog before. He must have landed on top of it."

With this reference to the accident which had occurred in the course of the previous night's "*Practice Patrol*" and had robbed the Squadron for the time being of a valued non-commissioned pilot, Flying Officer Soule sat back and stifled a yawn. He had been in the air for more than three hours the night before, and, like his flight commander, had not got to bed until well into the forenoon owing to the additional work resulting from the sergeant-pilot's mishap.

"Are you coming along?"

Soule had risen to his feet and was looking out of the mess-room window. The shades of an early spring night had already fallen and though it was only half-past eight, everything was dark outside and the light from the mess penetrated but a few yards into a rolling ground-mist. Soule rubbed the blur off the window-pane with his sleeve and strained his eyes into the fog. Some distance away he could just make out the indistinct glow of lights on the aerodrome.

"Are you coming?"—he repeated without looking round. "They have just lit up the flare-path, but it is mortal dark."

His companion, still at the breakfast table, mumbled something about being left alone to drink his coffee in peace and quietness; the raucous bellow of an electric klaxon drowned the tail end of the sentence, and brought an exclamation of annoyance from O'Reilly.

Springing to his feet, he flung down his napkin and hurried to the window to bump into Soule, who was turning hastily away.

"Good Lord! What a joyous night!"—O'Reilly peered out into the grey darkness. The fog had descended further and the glow of the flares beyond the aeroplane sheds, which Soule had noticed a few minutes previously, was no longer visible.

"Come on!" O'Reilly caught the other by the shoulder and together they left the room at a trot. Arrived outside in the entrance to the mess they paused. The rolling waves of fog and the falling night combined to form an impenetrable veil over the outside world. The electric lamps, powerful enough under normal conditions to flood the quadrangle in light, were now blotted out. To venture beyond the door of the mess entrance was to be lost instantly.

Just inside the vestibule was a glass-covered box fastened bracket-fashion to the wall. Below it was a card emblazoned with the words "Fog Lights." Flying Officer Soule was at the box; quickly opening the glazed lid he knocked up a brass tumbler. Immediately the quadrangle was flooded in bright light. Where it came from it was hard to say but it dispelled the fog as though by magic. Buildings and paths,

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The IDENTICAL **240 h.p. "PUMA"** engine which was fitted into the D.H.50 machine which won the

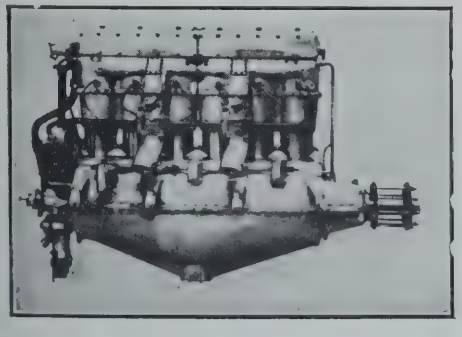
KING'S CUP AIR RACE, 1924,

(Pilot, Mr. A. J. Cobham), was used for the flight

LONDON to MOROCCO in ONE DAY and BACK

(Pilot, Mr. A. J. Cobham), and has recently been flown to **LISBON and BACK** (Pilot, Mr. H. H. Perry).

Further proof of the exceptional reliability of the Puma engines, has been afforded by the **17,000** mile flight, LONDON to RANGOON and BACK by Air Vice-Marshal Sir W. Sefton Brancker, Director of Civil Aviation (Pilot, Mr. A. J. Cobham). Extreme temperatures were experienced, but the engine ran faultlessly throughout, and is now on view at the Air Ministry Stand, in the Palace of Housing and Transport, British Empire Exhibition, Wembley.



240 h.p. SIDDELEY "PUMA" ENGINE.

For particulars of this type of engine apply to:

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Telegrams—"Airdisco, London."
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which could not have been imagined previously, stood out plainly to the view; daylight alone could have improved the visibility.

.

"All pilots stand by! Engines to be run. Report when this has been done."

The loud-speakers above the centre sheds relapsed into silence. The group of officers standing round the Squadron Commander in the doorway of the hangar saluted and dispersed towards the long line of little single-seater aeroplanes drawn up on the further side of the tarmac approach. Around each machine bustled a knot of mechanics clad in white overalls. One by one, as they reached their aeroplanes the pilots climbed in, exchanged a few words with the engine-fitter and the rigger, and then closely examined the instruments on their dash-boards before giving the word for the engines to be set in motion.

The three little runabout engine-starters left their places in the line and backed adroitly up to the airscrew of the first machine of their respective Flights. With the skill born of constant practice, the runabouts "coupled up" with the airscrew shaft at the first attempt; a sharp word of command echoed across the aerodrome and the engines of the first tiny machines leapt into action with a rending buzz.

Within as many half-minutes the dozen aeroplanes were all quivering with suppressed energy as their pilots tried out their power units at their various essential speeds. Then, by ones and twos, they switched off.

While, here and there, a pilot remained by his machine examining some detail of his engine or the machine itself, the remainder sought the warmth of the sheds or stood around in groups, discussing the prospects of the night. A close observer would have detected the note of expectancy and excitement which marked their attitudes and their conversation. It was particularly noticeable in the case of a few of the pilots who appeared as though suddenly brought face to face with some grim reality which they found it hard to accept phlegmatically. These were the younger pilots still in the dayspring of life.

Somewhere beyond the blaze of the flare-path which the Officer of the Watch had just lit up once more to make certain of the behaviour of the "sun-arcs," hovered a shadow which all could see who chose to look for it—the shadow of Death.

.

It was the Squadron Commander who brought out the Rugger ball and who initiated the passing movement which resulted in Corporal McManus touching down between the fire-hydrant and the ambulance.

"'Eard the latest, Corp'r'l?"

The ambulance driver leant round in his seat, as McManus seated himself on the running-board of the car to regain his breath.

"Only that we've to stand by here for the rest of the night, on the off-chance of the blighters coming over. Why what have you heard?"

The ambulance driver glanced about him before replying. The flare-path and the fog-lights had been extinguished and there was nothing but an opaque pall which a rising moon endeavoured unsuccessfully to penetrate. The voices and the scuffling of the remaining pilots rose and fell down the line of sheds as they fought for possession of the ball.

"Only this 'ere, Corp'r'l." The driver looked covetously at the cigarette the n.c.o. pilot was lighting. "The C.O. came past here just now with Flight Lieutenant O'Reilly. 'O'Reilly,' I 'ears 'im say confidential-like, 'the Wing Commander told me it was known at headquarters that the Squareheads intended to make it to-night, an' that if so the attack would probably commence abaht midnight!' That's wot I 'eard 'im say, Corp'r'l!"

"Go on!" Corporal McManus sprang to his feet and consulted his wrist watch.

"It's nearly half-past nine already," he added. "I'm off to have another look at my guns. No misfires or jamming for me to-night! So long!" And he loped off into the fog towards that side of the tarmac where the row of business-like little machines stood motionless, their noses pointed to the east, the fog settling in a damp clinging coat on the metal surface of their planes. Somewhere further along the tarmac the O.C. No. 509 (Night) Home Defence Squadron could be heard shouting, for all Essex to hear that Soule was "offside—miles offside."

(*To be continued.*)

Italy's Representative.

A note from the Italian Embassy states that General A. Guidoni has been appointed Air Attaché to the Italian Embassy, a post which has been held by Capt. Scaroni for several years. All will regret the departure of Capt. Scaroni who has been extremely popular both with the Air Service people and with the Aircraft Industry during his residence in England. His unfailing courtesy and friendliness have endeared him to all who have met him.

At the same time a most hearty welcome will be extended to General Guidoni, who has not only had a very distinguished career in the Italian Aeronautical Service but is in fact one of the great pioneers of European aviation.

In the very early days of flying he invented what came to be known as the Guidoni Palettes. These were small planes like miniature aerofoils and were fitted like the steps of a ladder on struts underneath torpedo-shaped floats which supported an ordinary Farman box-kite biplane. When the machine began to move along the water these palettes, or hydro-planes, lifted the floats clear of the water and so enabled the machine to take-off without having to overcome the drag of the big floats. The scheme worked perfectly well but in practice it was found that the palettes and their struts were liable to pick up patches of weeds or to foul floating obstructions, over which floats of the modern type would slide without damage, and so break off or overturn the machine.

A similar idea was embodied in the hydro-planes which were fitted by Lieut. Burney, R.N., to a Bristol monoplane just before the War and from them were developed the famous Burney paravanes which were used for mine-sweeping towards the end of the War 1914-18. The same idea is also found in the high-speed airscrew-driven boats developed by the late Doctor Graham Bell and Mr. J. E. A. Baldwin in Nova Scotia since 1918.

General Guidoni has been occupied on aircraft work ever since those early days and until last April was Director of Air Constructions in the Regia Aeronautica, which is the Italian Royal Air Force. British Aviation is honoured in having had appointed to this country such a distinguished Air Attaché as General Guidoni.—C. G. G.

Mr. Charles Dickson's Work.

Mr. Charles Dickson, whose humorous cartoon appeared in last week's AEROPLANE, is willing to undertake orders for water-colour "airscape" views of any type of aircraft, light or heavy, to any specification, or caricatures in black, white or colour of civilian aviation celebrities.

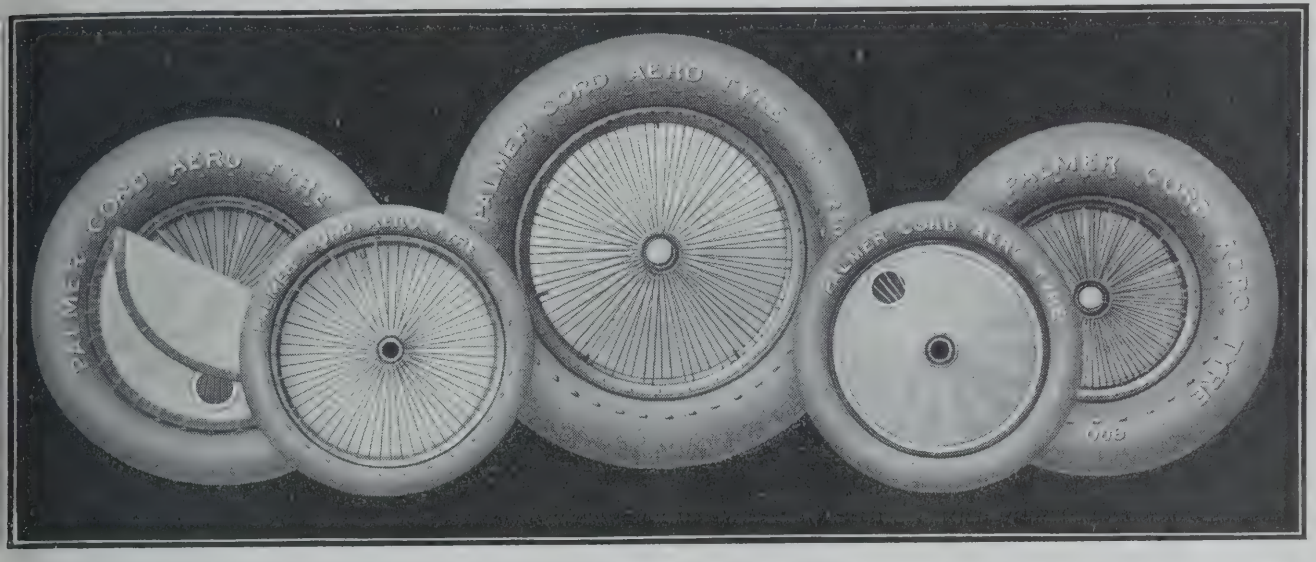
A large number of these caricatures are to be seen in the lounge of the Trust House at Croydon Aerodrome, as some time ago Mr. Dickson presented a complete set of the originals. Some of these are so good that one has frequently heard people say that they have recognised the original from the cartoon, which is a very different matter from recognising the cartoon from the original.



AT THE ANDOVER PARTY.—The Boulton and Paul Bugle with two Bristol Jupiter engines.

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375×55	168	111.12	25.4	Central	700×100	99	178.	38.89	132/46	1000×150	201	185.	60.32	125/60
300×60	16	111.12	25.4	Central	,,	112	150.	38.09	Central	,,	210	185.	60.32	Central
,,	17	72.39	12.7	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	,,	147	178.	55.	Central	,,	149	185.	55.	Central
,,	138	130.	38.09	Central	750×125	77	178.	44.45	132/46	,,	155	220.	66.67	Central
575×60	21	160.	28.	Central	,,	92	185.	55.	135/50	,,	166	185.	55.	125/60
,,	34	150.	31.75	104/46	,,	95	185.	55.	Central	900×230	107	185.	55.	Central
,,	111	150.	38.09	104/46	,,	96	178.	55.	132/46	,,	108	185.	55.	125/60
600×75	21	160.	28.	Central	,,	99	178.	38.89	132/46	,,	128	220.	66.67	Central
,,	34	150.	31.75	104/46	,,	112	150.	38.09	Central	,,	137	250.	80.	Central
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50	,,	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	,,	85	185.	55.	Central	1100×220	134	220.	66.67	Central
,,	79	178.	44.45	Central	,,	161*	185.	55.	135/50	,,	136	250.	80.	Central
,,	100	178.	38.09	132/46	,,	163*	185.	66.67	135/50					
,,	101	178.	31.75	132/46	,,	169†	185.	55.	135/50	1250×250	133	250.	80.	Central
700×100	77	178.	44.45	132/46	,,	211*	185.	60.32	135/50	,,	154	304.8	101.6	Central
,,	92	185.	55.	135/50	1000×150	131	220.	66.67	Central	1500×300	115	304.8	101.6	Central
,,	95	185.	55.	Central	,,	150	185.	55.	Central	,,	126	304.8	152.4	Central
,,	96	178.	55.	132/46	,,	167	185.	55.	125/60	1750×300	139	400.	152.4	Central
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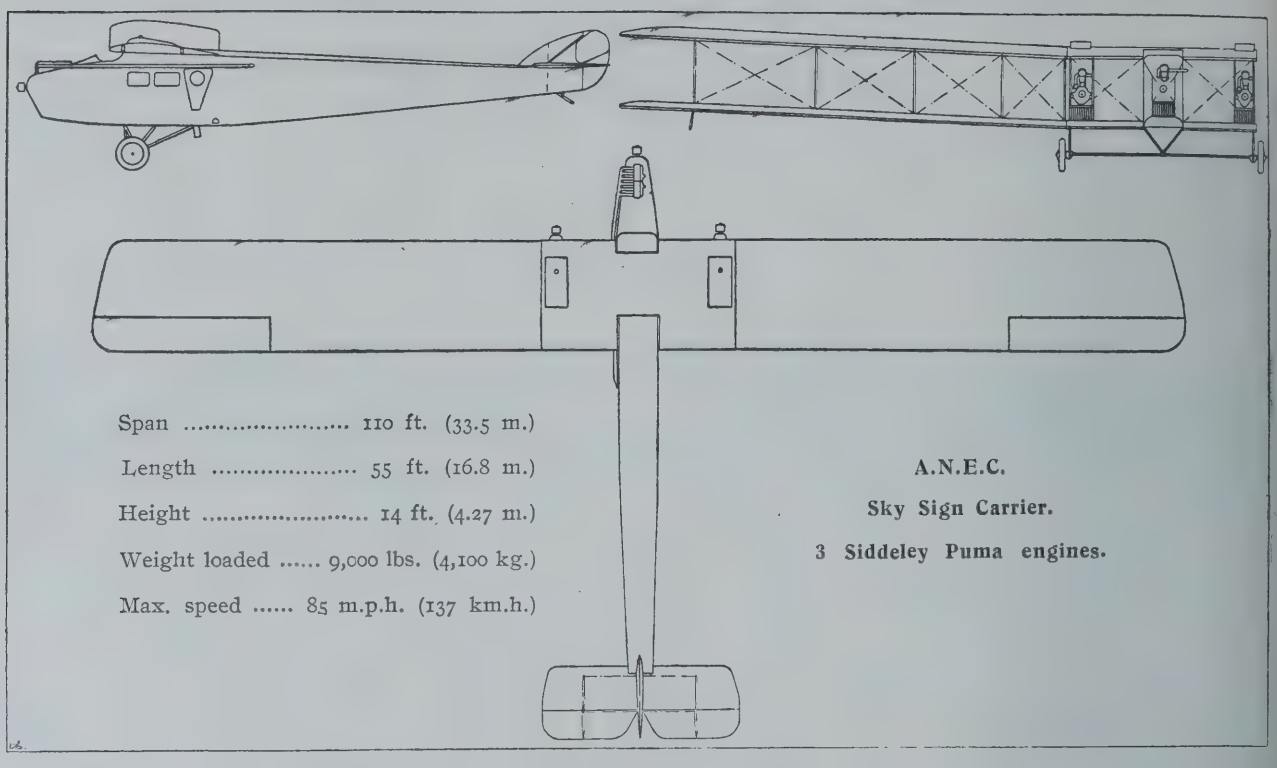
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

AN INTERESTING NIGHT FLYING MACHINE.



The Air Navigation and Engineering Co. Ltd., of Addlestone, are at present completing a large three-engined commercial aeroplane which has been specially designed for the display of electrically illuminated advertising signs. It may be remembered that some time ago a little work was carried out over London with a D.H.9 machine bearing on its lower wings a series of electric lamps outlining the name—if memory is correct—of one of the most pushful of evening papers.

Experience showed that letters of the size which could be carried on the wings of the D.H.9 were not sufficiently striking to attract much attention at heights at which it was wise to fly over London in the dark

This machine has been designed to permit of very large letters being displayed, and farther, by the provision of three engines and the use of a light loading of the wings and a moderate power loading, to minimise the danger of a forced landing under the conditions necessary for effective work of this kind.

In general arrangement the machine is a normal biplane with one engine in the nose of the body and two on the wings. The wings are of a very great span, and of 10 ft. chord, and the lower wing is arranged with a series of cells into which battens bearing appropriately arranged electric lamps may be slipped. These lamps are within the wing itself, so that they do not interfere with the aerodynamic qualities of the machine.

To facilitate storage the wings are made to fold outside the wing engine mounts.

The fuselage is of considerable cross section and carries pilot and assistant side by side in front of the top centre section. Behind the cockpit is a large cabin space which gives room for four passengers or for goods if required. A monoplane tail, with triple rudders, is fitted.

An entirely independent power plant, consisting of a small petrol engine and generator, is carried in the fuselage to supply current for the electric signs. This generating plant is easily accessible from the cabin and the front cockpit.

The arrangement permits of the exhibition of signs of an overall size of 110 ft. by 9 ft.—which should be striking enough at any reasonable altitude.

Although designed specially for advertising work, this machine, with a wing loading of about 5 lbs./sq. ft. and a power loading of about 13 lbs./h.p. and a disposable load of about 2,000 lbs., should prove to be a type which could be used for many other night flying purposes with considerable success, and its performance will be watched with interest.

This machine has been built to the order of Hucks' Night Fliers Ltd. who have secured a number of contracts for aerial advertising by night, and who will begin operations as soon as the machine is complete and delivered to them.

THE BRISTOL LUCIFER IV.

The Bristol Lucifer engine has long been known as one of the most reliable of moderate powered aero engines in existence. The Bristol Co. themselves have a number of these engines in very hard and continuous service at their flying school, and the first hand experience thus gained has permitted them from time to time to incorporate modifications and improvements and to test them under service conditions.

As a result they have recently submitted to type test under Air Ministry rules a Lucifer engine embodying all the modifications indicated as desirable by their experience. This engine, which is known as the Series IV., is of the same dimensions as the previous engines of the series, but is rated at 120 h.p. instead of 100 h.p.

The type test at this rating comprised a total of a little over 105 hours' run in all.

This total was made up as follows :—(1) 1½ hours on Froude dynamometer for power curve; (2) 40 hours on Froude dynamometer in four runs of 10 hours each at 108.2 b.h.p. 1,700 r.p.m., with a run up to 123 h.p. at the end of each 10 hour period; (3) 50 hours on an airscrew in a hangar at 108.2 b.h.p.; (4) 9 hours on the Froude at 108.2 plus 1 hour at 120 h.p. at 1,820 r.p.m.; (5) 1 hour on Froude at 1,960 r.p.m.; (6) 10 minutes slow running at 400 r.p.m.; (7) 1 hour high-power test at 143.2 h.p.; and (8) 1½ hours for a final power curve.

The performance of the engine improved steadily throughout the test. On the first power curve the engine developed at 1,700 r.p.m. 127 h.p. for .554 pints of fuel per h.p. hour. On the final power curve 132.5 h.p. for .535 parts per h.p. hour were devloped at the same r.p.m.

At 1,870 r.p.m. the power increased from 136 b.h.p. to 142 b.h.p., and the fuel consumption fell from .555 pints to .540 pints per h.p. hour between first and second power curves.

The average consumption during the 100 hours was 7.98 gallons of petrol per hour (.59 pts. h.p. hour), and 4.1 pints of oil per hour (.038 pints h.p. hour).

On stripping the engine—which had actually run some 135 hours under type test conditions—was found to be in perfect condition.

Tests for Aircraft Engines.

Air Publication No. 840, 4th edition, dated May, 1925, gives full particulars of the tests required by the Air Ministry for aero-engines. This notice covers type and acceptance tests—in the latter case both for new and for repaired or rectified engines, whether for the R.A.F. or for civil use under Air Navigation Regulations. It does not apparently make any modification in the requirements laid down in previous editions, except that engines of under 1,530 c.c. are now to be subject to the same conditions as are larger types.

THE H. G. HAWKER ENGINEERING CO., LTD.

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THE REID REACTION TIME APPARATUS.

The Reid Reaction Time apparatus, which is exhibited at Wembley by the Royal Aero Club, represents the most recent development of the attempt to measure what may be called the manual capacity of an individual to become a capable pilot without actual test of that individual in the air.

For this purpose quite a number of different forms of test for the "reaction time" have been devised and tried with more or less success. The essential feature of the Reid apparatus is that in it the time occupied in making movements very closely similar to those used in controlling an aeroplane, instead of that of movements of an arbitrary nature, is measured.

What a Pilot Does.

In order properly to understand the scope of an instrument of this type it is necessary to have at least a general idea of what such an instrument purports to measure, and how the quantity so measured is an index of the capacity to fly.

Assume that a pilot is flying an aeroplane straight and level on a given course and that a disturbance of some kind affecting the aeroplane occurs. The pilot receives some signal that the machine has deviated from its original state of steady motion. In a large number of cases the initial signal is sensory—that is to say the pilot feels some sort of a "bump." In the great majority of such cases this bump is rather a premonitory signal, than one which conveys to him a definite indication of what precise disturbance has occurred, and for information on this subject he has to trust to his eyes. Even in those cases where the feel of the bump itself gives an index to the nature of the disturbance, the pilot will almost invariably check this indication by visual methods, before acting on it.

Thus in clear weather the pilot judges as to whether the machine is level transversly or fore and aft by reference to the horizon, and whether it has slewed off its course by reference to the bearing of some fixed object ahead. In fog or mist he must refer to his cross-level, air-speed indicator, and compass, supplemented possibly by such instruments as the turn indicator and the like.

How he Does It.

This visual signal—whatever may be its nature—after being received by the eye is followed by quite a complicated process. The mechanical details of this process are not known with any sort of accuracy, but it is possible to divide the whole up into a series of stages.

In the first stage the signal received on the retina of the eye is transmitted to the brain. It seems probable that this rate of transmission is more or less a fixed quantity—at any rate in any one individual.

Secondly, the brain interprets the signal—for instance, recognises that one wing has dropped. There is no doubt whatever that there is a very great difference, not only between different individuals, but even in the same individual, in the rapidity with which the signal-decoding department of the brain works. That a known and familiar signal is interpreted more rapidly than a strange and unusual one, is a fact of which each of us must be aware. That the same individual will take shorter or longer times to interpret the same signal, according to whether he is fit or ill, tired or fresh, is less obvious to the individual at the moment, but seems to be unquestionably true.

Thirdly, having interpreted the signal, the brain has to decide upon what action to take. That is, having recognised that the left wing has dropped, the brain decides that the stick must be pulled to the right. Here again, there is a wide variation in the rate at which the brain works, both between different individuals and between the same individual in different states.

Fourthly, having decided what is to be done, the brain sends a signal to the appropriate muscles. Probably again the rate of signal transmission is fairly constant in any individuals and may not vary widely as between individuals.

Finally the muscles respond to the signal, and the predetermined movement is made.

This may be regarded as one complete phase in making a control movement, but it may be said that two such phases at least are necessary in any correction of the course of an aeroplane after a disturbance. The eye receives a signal that one wing has dropped, and the process above is carried out. As the machine approaches the correct level position the eye receives a further signal to that effect and the pilot has to go through the whole process of interpretation and action again, in order that he may centralise his controls at just the right moment to allow the machine to reach a level position without swinging past it.

What May go Wrong.

In this his judgment may be at fault, so that either he does not completely correct, or he overdoes the correction and causes the machine to swing past the level position. If this happens he receives yet another signal, in fact it is possible for this process of over-correction to be continued indefinitely. Actually it can be said that even the best of pilots never hits off his control movement with absolute accuracy, and his flying is really a process of continuous approximation to the intended attitude and course of flight. With a good pilot the approximation is very close and is reached quickly after a given disturbance. With a bad one the disturbance will be followed by a relatively long-continued oscillation from one side to another of the desired condition of equilibrium, and a really close and long-continued approximation to steady flight may never be reached.

It may therefore be said that one essential of a good pilot is the capacity quickly and accurately to respond to all signals that he may receive concerning the behaviour of his machine.

Accuracy v. Speed.

The matter of accuracy is just as important as that of quickness of response. The man who responds quickly to the original signal and pulls the stick rapidly in the right direction—but does so too vigorously and so badly overshoots—will take longer to reach steady conditions than another man whose initial response may be slower, but whose judgment as to the amount of control movement needed is more accurate. For this reason some methods which have previously been attempted for measuring reaction time have proved to be less valuable as a measure of flying capacity than had been hoped. They have measured reaction time without reference to the accuracy of touch and judgment.

From the outline of the various stages of any one reaction it is obvious that the reaction time of any individual is compounded of the time taken in each stage, and that the total time taken to complete one phase may vary very widely, according to the degree of familiarity of the individual with the signals and movements involved. This increase in rapidity with practice can undoubtedly be assigned to two separate causes. One is an increase in the speed of the purely mental processes of interpretation of the signal and of the decision to take the right action. The other is caused by the increased facility with which the muscles involved will perform a familiar movement.

As regards the first or mental part of the action when one receives an unfamiliar signal which also calls for an unfamiliar response the mental processes involved are perfectly apparent. One is conscious of thinking out what the signal means and what action one should take as a result of the message conveyed by the signal. When both the signal and the correct response have become sufficiently familiar one does not remember having thought the matter out at all. When this occurs the reaction to that particular signal is often said to have become instinctive or sub-conscious—and in this condition the reaction time for that particular response is quite noticeably reduced.

Of "Instructive" Reaction.

Personally one has very grave doubts as to the soundness of the ideas underlying the terms instinctive or sub-conscious in this connection. It would seem extremely probable that a pilot who flew instinctively—that is to say without conscious or reasoned control of his actions—might possibly fly quite well for so long as no abnormal conditions supervened, but would become extremely dangerous when they did.

Good pilots, however, do seem invariably to possess short reaction times and to develop this so-called instinctive response. Probably all that distinguishes the one stage from the other is that an unfamiliar action and the train of thought that leads to it impresses itself on the memory. The familiar action and train of thought is rapidly forgotten. In the first case a definite and memorable mental and physical effort has to be made, in the other the action is commonplace and effortless.

It is very important that the routine of controlling an aeroplane in flight should become as free as possible from mental effort and fatigue on the part of the pilot otherwise he will not be free to give clear and concentrated attention to occurrences out of the normal. The pilot who has all he can do to keep his machine flying on an even keel at a safe speed cannot be expected to pull off an emergency landing—he must either neglect the routine of flying while he considers the emergency, or concentrate on flying and trust that a decent landing field will present itself when he reaches the ground.

(To be continued.)

New Technical Literature.

Aeronautical Research Committee: R. & M. No. 936.—A Continuous Rotation Balance for the Measurements of Pitching and Yawing Moments due to Angular Velocity of Roll. By T. Lavender. Price 6d. net.

R. & M. No. 950.—Reports and Memoranda of the Aeronautical Research Committee Published between Apr. 1, 1923, and Dec. 31, 1924 (Index). Price 4d. net.

R. & M. No. 966.—Full Scale Tests of Different Ailerons on Bristol Fighter Aeroplanes. By H. M. Garner and E. T. Jones. Price 6d. net.

R. & M. No. 864.—The Effect of Keyways upon the Strength and Stiffness of Shafts subjected to Torsional Stresses. By H. J. Gough. Price 1s. 3d. net.

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THE INSTITUTION OF AERONAUTICAL ENGINEERS.

An extraordinary meeting of the Institute of Aeronautical Enginers was held on Thursday, July 23rd, for the purpose of considering the proposals of the Council for carrying on the Institution under the conditions imposed by the refusal of the members to sanction the suggested amalgamation with the Royal Aeronautical Society.

These suggestions involved a certain number of modifications to the Rules of the Institution. Of these the first was a formal rescinding of the alteration made at the previous meeting, giving power to amalgamate with other associations having aims similar to the Institution.

Of a more directly constructive nature were alterations to modify the rate of subscription payable by various grades of members, to strengthen the Council by adding Associates to the grades represented thereon, and to provide for the taking of postal ballots upon any resolutions before a general or an extraordinary meeting other than such as concerned alterations in the objects and rules of the Institution.

With minor amendments in wording the proposed alteration were all carried by a large majority. A further amendment to the Rules, making it obligatory on the Council to give not less than fourteen days' clear notice of any annual or extraordinary general meeting was proposed and carried.

The effect of the change in the rate of subscriptions is to require full members and Associate members to pay an annual subscription of three guineas, and Associates of two and a half guineas in place of the uniform subscription of two guineas for these grades. The subscription payable by students is increased from 5s. to half-a-guinea. Overseas members, Associate members and Associates will be required to contribute one and a half instead of one guinea.

Further, it was resolved that the unofficial Emergency Committee, which had been constituted at the last extraordinary meeting to assist the Council in considering ways and means of continuing the work of the Institution should be regularly elected and constituted to organise the recruiting of fresh members and in other ways to work with the Council for the Institution's welfare.

The Chairman (Mr. Molesworth), in his speech, was able to announce that the Emergency Committee had already raised in the form of voluntary contributions to tide over the present emergency, a sum of over £90. (This sum was raised to £100 during the evening.)

That sum, with the balance in hand at the end of the last financial year, would see the Institution to the end of this year and leave a small balance.

The increased subscriptions at the present membership, together with the proceeds of the sale of Minutes of Procedings, would produce a total revenue of £550 per annum, against which the annual expenditure was estimated at £600.

The Institution therefore must take steps to increase its membership—something like 50 new members were necessary to place it in a safe position.

The Emergency Committee had already done good work towards this end over and above the collection of cash, and he appealed to all members to do their best in bringing in new blood.

The Council under the rules had the right to admit to the appropriate grades of the Institution any person who could produce adequate proof of their experience and qualifications without requiring them to submit to the examinations of the Institution. It seemed to them that there were many engaged in the aircraft industry whose positions—in virtue of the duties and responsibilties that they discharged—could properly be regarded as fitting them for the exercise of the Council's discretion in exempting applicants from examination, and he proposed to ask the meeting to approve of a special effort to attempt to enlist as many as possible of those who came within this class to join the Institution under these exceptional conditions. This approval was unanimously given.

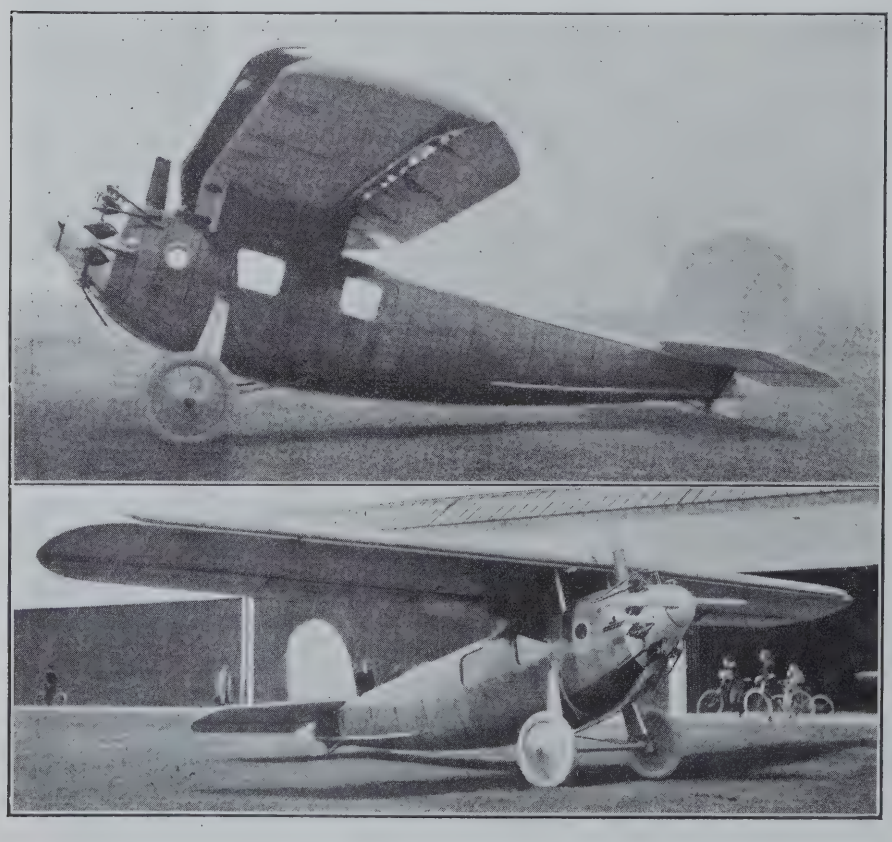
[It is very pleasant to have to record that the Council have been so excellently supported by the present members in their effort to place the Institution on a self-supporting basis. The fact that a sum of nearly one pound per member has been raised in a few weeks to meet immediate needs is fairly conclusive evidence of the interest which the work of this society arouses in its members. This should in itself be fairly good evidence that the Institution is worth supporting, and one can only hope that those who are qualified but not members will take note of this fact, and take immediate steps to apply for membership.—Ed.]

LIGHT AEROPLANES OF ALL NATIONS.

Leicht-Flugzeugbau, Dr. Ing. G. Lachmann. Published by Verlag R. Oldenbourg, München and Berlin. 6.50 marks net.]

In this compact book of some 140 pages Dr. Lachmann has given not only a history of the development of the light aeroplane throughout the world, but a brief though characteristically complete analysis of the aerodynamic and structural problems involved in light aeroplane construction, descriptions of many of the most successful machines of the class, and much practical information as to practical construction.

All those who are interested in light aeroplanes from the more technical point of view, and who can read German will find this work thoroughly sound, complete, and interesting. It cannot too greatly be regretted that the lack of general public interest in aeronautics in this country renders it impossible profitably to publish serious technical aeronautical works of this nature in English.



The Udet U.8b, a version of the well-known Udet Limousine, but fitted with leading edge and tailing flap slots. This machine has been produced by Ing. Hermann of the Udet firm in collaboration with Dr. Lachmann, one of the co-inventors of the slotted wing.

The Udet Limousine is an economical light commercial machine carrying three passengers, with a 100 h.p. Siemens-Halske engine, and it would appear to be of a type lending itself excellently to the experimental development of devices such as the slotted wing.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 24; Tuesday, 27; Wednesday, 19; Thursday, 5; Friday, 34; Saturday, 25; Sunday, 15.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostende—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 60, passengers 354, freight 19 tons.

AIR UNION:
Paris—London: Machines 80, passengers 466, freight 9 tons.

K.L.M.:
Amsterdam—Rotterdam—London: Machines 25, passengers 109, freight 2 tons.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 4, passengers 12.

SPECIAL MACHINES: Nil.

Total number of trips by British machines: 60, carrying 354 passengers. Foreign machines: 109, carrying 587 passengers.

Comparative Figures:

For week ending Aug. 9:
Machines, 169; Passengers, 941; Crews, 242; Total personnel, 1,138.

Corresponding week, 1924:
Machines, 181; Passengers, 930; Crews, 225; Total personnel, 1,155.

Corresponding week, 1923:
Machines, 146; Passengers, 682; Crews, 233; Total personnel, 915.

Corresponding week, 1922:
Machines, 209; Passengers, 734; Crews, 342; Total personnel, 1,076.

Corresponding week, 1921:
Machines, 155; Passengers, 462; Crews, 144; Total personnel, 606.

Corresponding week, 1920:
Machines, 115; Passengers, 240; Crews, 144; Total personnel, 384.

Croydon Notes.

Imperial Airways Ltd still carry on and, like Holland, is "damned all round." However, things are just going on better, but that is about all one can say.

The Air Union still carries all before it and is beginning to reap rewards for its old policy of standardising machines and engines instead of having a regular mixed grill.

K.L.M. is now using the Fokker F.VII. (Rolls-Royce) exclusively on the London service. Only three of these machines are in use, and, by adopting the intensive principle of running these three machines keep up two services a day each way.

A new Fokker, the F.VIIa, fitted with a Bristol Jupiter engine, has been built, and is being thoroughly tested in Amsterdam by Mr. Grassé, chief pilot to the Fokker firm. One hears that the machine is extremely successful and that they think great things of the Jupiter in Holland.

It has now been decided definitely that the scheme to keep the offices, etc., in the centre of the aerodrome, has been abandoned and that these will now be built at the bottom of the aerodrome, next to the Aircraft Disposal Company's works. This really seems a much better scheme, and it will allow much more free aerodrome space. Moreover, if conditions ever warrant the running of special trains to the aerodrome to catch the air liners, the siding and platform are already there.

Mr. Youell and Mr. Perry returned to Croydon from Lympne on Tuesday, on the Avro-Airdisco and the Martinsyde A.D.C.1 respectively, and on Tuesday and Friday, Mr. Perry was testing another Avro-Airdisco.—G. D.

The Kantara-Karachi Air Routes.

In his explanatory note to a Supplementary Estimate of £10 on the Air Vote for 1925-26, the Secretary of State for Air states:—

I informed the House of Commons on June 11 that H.M. Government had approved in principle the institution of a Civil Air Service between Egypt and India, and that it was their intention to grant a subsidy for this purpose.

It is proposed to enter into a contract with a civil firm for a weekly air transport service between Kantara and Karachi, *via* Bagdad and Basrah, to extend over a period of five years. In addition to the subsidy under this contract certain direct expenditure out of Air Votes will be involved for preparation of aerodromes, ground services, etc.

The total expenditure to be incurred out of Air Votes on capital services, maintenance and subsidy is estimated at an average of £100,000 per annum over five years. The institution of this service will, however, make it possible to terminate the fortnightly mail service at present performed by the Royal Air Force between Egypt and Iraq, and to withdraw in consequence from Iraq a squadron of the Royal Air Force, at a substantial net saving to the State (*i.e.*, a reduction on gross Air Votes and a more than corresponding reduction on the Vote of Middle Eastern Services).

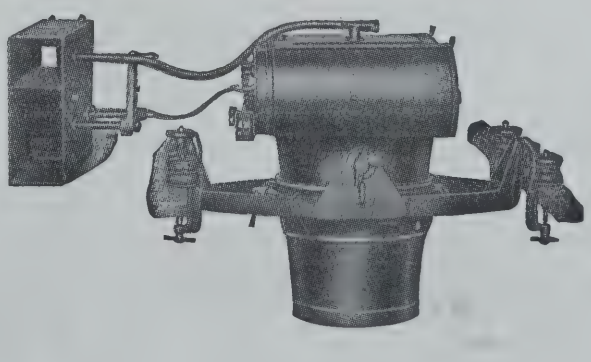
In order that the saving referred to may accrue at the earliest possible date, it is desired to take steps to initiate the new service, *i.e.*, to settle a contract and commence the necessary ground preparations. It is not anticipated that additional provision in respect of the subsidy will be required during the current financial year, but liabilities will be incurred on certain Works Services. Any expenditure maturing this year will be accounted for under existing heads of charge. No excess on Air Votes generally is anticipated on this account, but, should it be necessary, Treasury authority will be sought under the terms of the Appropriation Act for the application of savings on other Air Votes to meet any excess occasioned on Air Vote 8.

The terms of the subsidy agreement when concluded will be laid before Parliament in a White Paper.

The White Paper announcing the Supplementary Estimate states that it is proposed to enter into a contract with a civil

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firm for a weekly air service between Kantara and Karachi to extend over a period of five years involving expenditure in respect of equipment and subsidy not exceeding £500,000 in all in the five years.

The publication of this Supplementary Estimate was anticipated by a series of questions and answers in the House of Commons on June 12 and the proposition was discussed fully in a Leading Article in THE AEROPLANE of July 22.

The Bristol Engines.

In the last issue of THE AEROPLANE in the description of the Andover At Home, the following note appeared :—" The Bristol School Biplane (Lynx engine), piloted by Mr. Campbell, etc. " This is an obvious error in transcription, as it is well known that the Bristol School Biplane is equipped with the Bristol Lucifer engine. This particular machine also took part in the Lympne races, and in the description of that it was properly described.

In going to press with last week's issue, there was so little time to spare between the finish of the Meeting and the zero hour for THE AEROPLANE to go to press that matters had to be rushed somewhat, and so the absurd error crept in and lay there unnoticed. It will be remembered that this particular machine finished second in the International Handicap.

It is interesting to note also that the Bristol Cherub, which is the younger brother of the Lucifer, and comes from the same stock, practically swept the board at Lympne. About the only thing which it did not win was the International Handicap, and in the Grosvenor Cup Race, the Cherub was placed first, second, third, fourth and fifth. The success of these two engines, coming on top of the many successes of the Jupiter, is a great feather in the cap of the Bristol Company and of Mr. Roy Fedden, the designer.

The Siskin at Lympne.

A certain erroneous impression has been created by certain remarks made last week on Mr. Courtney's performance on the Siskin at Lympne. The Editor, in describing the Siskin's aerobatics, pointed out that certain of the best evolutions of Mr. Courtney had been seen on other machines before. Exactly what the Editor meant to convey was that he had seen certain evolutions carried out by several *different* types of machines, but never previously all by the same type. But what he forgot to add was that the Siskin was able to perform *all* these " specialist " evolutions itself, although its main purpose is that of a high-powered, single-seat fighter with a big engine, which type has hitherto been believed to be difficult to manœuvre well.

Unfortunately the Editor is away on the Continent, or he would have explained this himself in much better phraseology.—G. D.

Wireless at Lympne.

At the request of the Royal Aero Club and by the kind permission of the P.M.G. three Transmitting and Receiving Stations were installed by Messrs. N. V. Webber and Co. Ltd., of Oatlands Park, Weybridge, for the Light Aeroplane Trials, held at Lympne on Aug. 1, 2 and 3 last, when rapid communication was maintained between the Aerodrome and the two turning points on the course—namely Hastingley and Postling.

Tents were erected at the turning points in which the apparatus was installed and two 15 feet bamboo poles tied together were used for aerial masts, the length of the aerial being approximately 75 feet. The apparatus consisted of a two-valve receiving set and a single-valve transmitter, equipped both for C.W. and 'phone. Power was derived from large capacity dry cell H.T. batteries about 5 watts being drawn at 220 giving an aerial current of .3 amps between 150 and 200 metres.

The conditions under which operations were carried out were by no means ideal owing to the heavy rain during the installation of the apparatus and heavy storms during most of the day on the Saturday. In addition to this one of the stations—i.e., Hastingley—had to be moved a distance of about $1\frac{3}{4}$ miles for the altered course of the Sunday trials. As all the apparatus was portable this was accomplished within a few hours of the last race on Saturday.

Constant communication was maintained between the out-stations and headquarters on the Aerodrome and great satisfaction was expressed with regard to the reports on the position of the aeroplanes and the safety of the pilots when forced landings had to be made. By this means considerable delay was saved in the removal of the aeroplane (i.e., the Machine, not the Paper, which was everywhere).

In addition to their work at Lympne one can very strongly recommend this firm for ordinary broadcast apparatus. Recently one's own set fell ill and become very hoarse and made whistling noises. N. V. Webber and Co. took it in hand at once and for a very reasonable sum completely rewired it, cured it of its ailments and brought it completely up to date so that it now bellows out concerts from America at the top of its voice.

Oil at Lympne.

It is interesting to note that at the Lympne Meeting, which has recently concluded, every single race was won on Wakefield's Castrol, and the machine which put up the best performance in each performance test was also using Castrol, but this is what one always expects now-a-days.

Mortgages and Charges.

HARROGATE AERODROME AND LAND DEVELOPMENT CO. LTD.—Deposited on July 2, 1925, of deeds of land in Leeds Road, Harrogate, to secure all moneys due or to become due from the Company to Lloyds Bank, Ltd., not exceeding £2,500.

NORTHERN AIR LINES LTD.—Issue on July 25, 1925, of £1,000 debentures, part of a series already registered.

PERSONAL NOTICES.

DEATH.

WOOD.—On July 18, at 5, Elmwood Crescent, Stag Lane, E. A. E. Wood, late Capt., R.F.C., of illness contracted on active service.

Capt. Wood served with the original 5th Wing H.Q. R.F.C., Middle East, until July, 1916, when he went to Salonica for special duty. He remained in the R.A.F. until November, 1922, when he was invalided out on account of ill-health, and his death is directly due to the War.

MARRIAGES.

BUTLER—KNOX NIVEN.—On July 28, at St. John's, Newfoundland, Alan Samuel Butler, only son of the late Samuel Butler and of Mrs. Frank Burges, of Farncombe, Broadway, Worcestershire, to Lois Knox Niven, only daughter of the late Sir William Duff Reid and Lady Reid, of St. John's, Newfoundland, and widow of Lt.-Col. Hugh Knox Niven.

MONTGOMERY-MOORE—MEEK.—On July 24, at St. Charles, Hull, Flg. Off. R. J. Montgomery-Moore, R.A.F., to Marjorie, second daughter of Mr. and Mrs. Herbert Meek, of Hull.

POOLE—BARKWORTH.—The marriage between Capt. Anthony A. J. Poole, late R.A.F., of Zanzibar, youngest son of Major A. E. Poole, late 10th Hussars, and Frederika Dolores St. G. Barkworth, only daughter of Mr. Frank Barkworth, of Daglingworth Place, Cirencester, took place at St. George's, Hanover Square, on July 23.

FORTHCOMING MARRIAGES.

BERTRAM—LOCKHART.—The marriage arranged between Flg. Off. Ian A. Bertram, R.A.F. (late R.N.), second son of the late Major William Bertram, of Kersewell, and Nisbet, Lanarkshire, and Dorothy Cecil, only daughter of Col. and Mrs. R. H. Eliott Lockhart, of Cleghorn, Lanark, will take place on Tuesday, Aug. 25, at Christ Church, Lanark.

CLARKE—CRABTREE.—An engagement is announced between Mr. Eric Hugh Clarke, late R.A.F., son of Mr. and Mrs. Hugh Clarke, of Hendon, Savanna-la-Mar, Jamaica, and Aileen Margaret, daughter of Dr. E. F. Crabtree, of Ashurst Lodge, Worthing.

WILLIAMS—ANSELL.—The marriage of Sq. Ldr. G. G. A. Williams, R.A.F., third son of the late Capt. G. S. Williams, 8th Hussars, and Kathleen Mary, daughter of the late Lieut.-Genl. G. K. Ansell, 5th Dragoon Guards, and Mrs. Ansell, will take place at St. Andrew's Church, Rugby, at 2.30 on Sept. 2.

WYNNE—STUART.—An engagement is announced between Flt. Lt. Frederick Robert Wynne, M.B.E., R.A.F., eldest son of Dr. Frederick Edward Wynne, M.B., D.P.H., and Mrs. Wynne, of 327, Fulwood Road, Sheffield, and Kathleen Anne Pole, eldest daughter of Lieut.-Col. and Mrs. Reginald Pole Stuart, of 29, Westbourne Gardens, Folkestone.

YOUNG—CATTELL.—The marriage arranged between Flt. Lt. J. W. Young, M.B.E., R.A.F., younger son of Mr. James Young, Princes Street, Thurso, Scotland, and Olive, only child of Mr. and Mrs. A. C. Cattell, Coningsby House, Hemingford Abbots, will take place at St. Columbia's Church, Pont Street, on Aug. 29, at 2.30. p.m.

BIRTH.

BUTCHER.—On July 25, at Abu-Sueir, Egypt, to Constance, wife of Flt. Lt. F. L. C. Butcher—a son.

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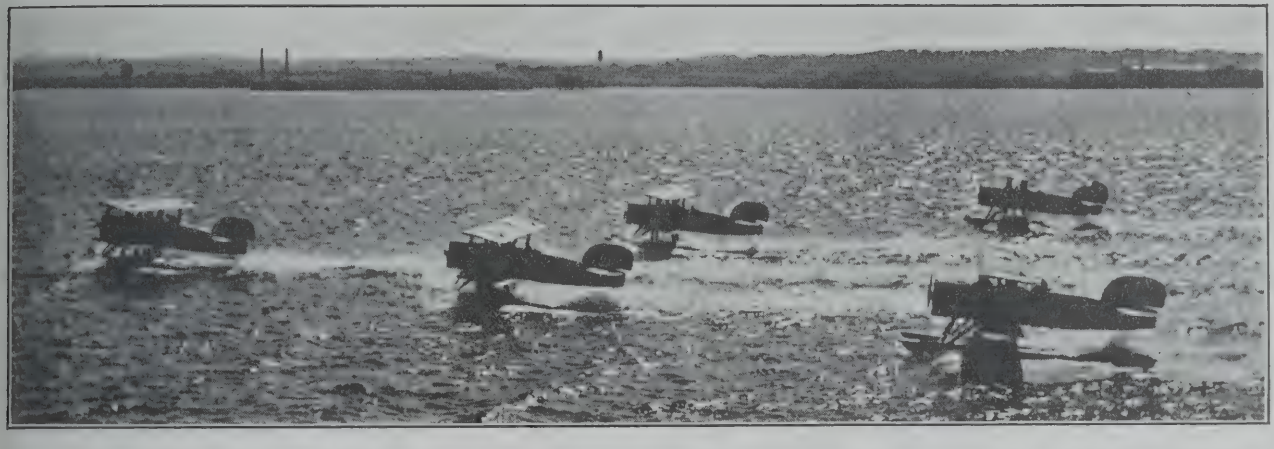
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Edited by C. G. Grey

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OFF SHORE WHERE SEA AND SKYLINE BLEND IN RAIN.

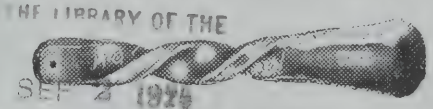
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A U.S. SEAPLANE FORMATION:—A formation of 5 Douglas D.T.2 torpedo and bombing seaplanes (400 h.p. Liberty engines) of the American Navy taking off.

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AUGUST 19, 1925.

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ON "HORAE FUGACES."—I.

["A Flying Visit to the Middle East," by the Right Honourable Sir Samuel Hoare, Bart., C.M.G., M.P., Secretary of State for Air. 88 pages, 8 plates and a map. 3s. 6d. net. Published by the Cambridge University Press.]

Anybody who wishes to understand some of those problems on which the policy of the British Empire depends should read the modest-looking little book which our excellent Secretary of State for Air has just had published. It is ostensibly a description of the journey which he and Mr. Amery, the Secretary for the Colonies, made during March and April from London to Basra and back. In the preface Sir Samuel says that the book consists of the material of certain lectures recently given by him in Chelsea and at Harrow School and that it deals with the less official aspects of the journey.

He adds that questions of high policy which he has purposely omitted can be discussed in Parliament. Nevertheless persons of reasonable intelligence will be able to read much between the lines of his story and will be able to see how questions of high policy may be affected by less official affairs.

At this point one may interpolate Sir Samuel Hoare's statement that the author's royalties on the sale of the book will go to the Royal Air Force Fund. This remark is necessary in case unkindly critics or political enemies may inquire why a Secretary of State should publish a book when so many writers who, in the words of Stalkey, "esteem themselves so as to be clever" are out of work. Readers will recollect that not long ago certain journalists were acutely unpleasant on the subject of literary work being done by Cabinet Ministers and even inspired the asking of questions in Parliament on the subject.

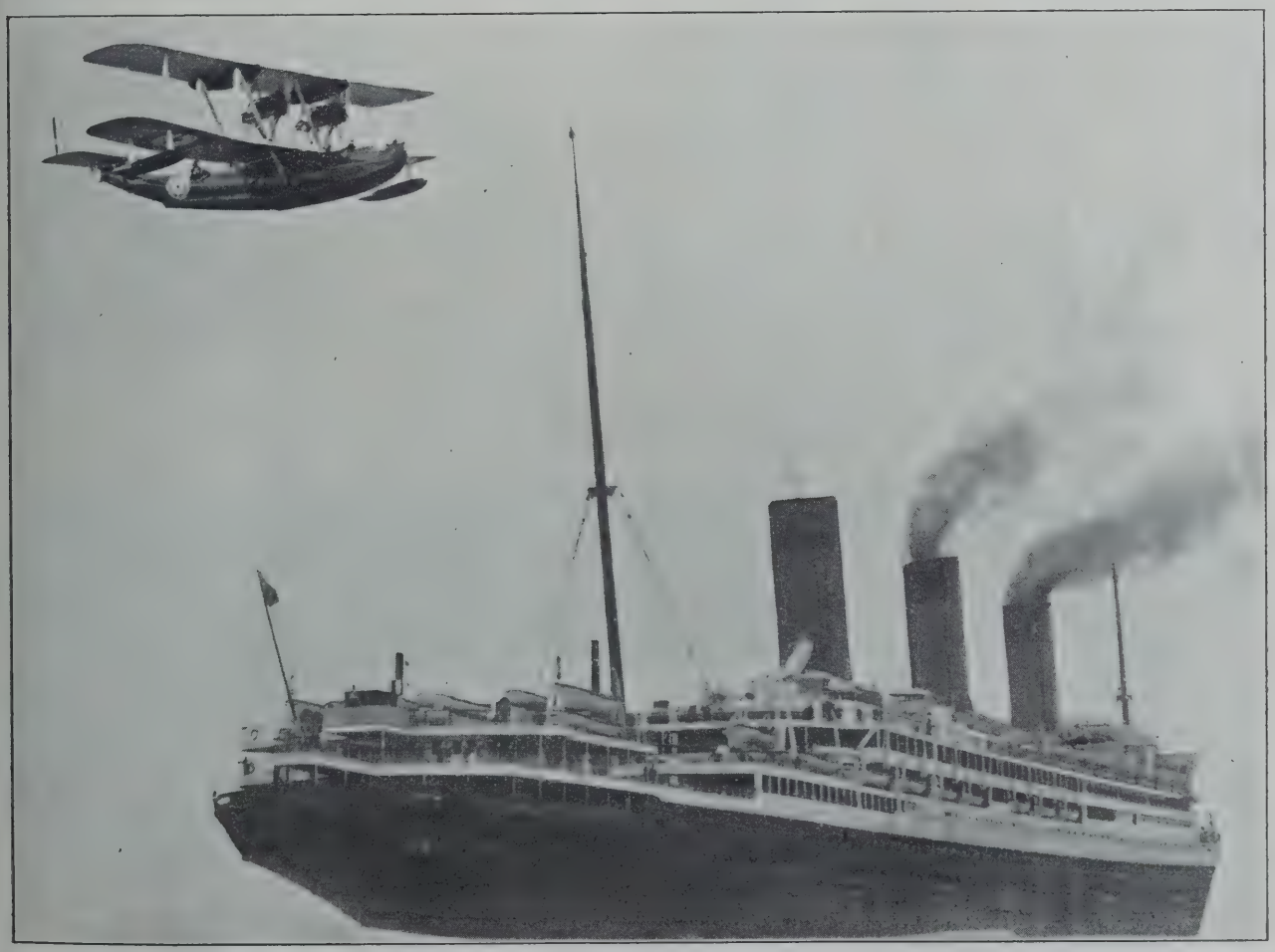
Those who read Sir Samuel's book will realise that no apology or excuse is needed for its publication and that if it had not been published the author would have been guilty of one of those sins of omission which are frequently more harmful than are overt acts.

High Policy.

The very first paragraph in the book suggests those questions of high policy which Sir Samuel disclaims in his preface. He says:—"It was very necessary that someone in authority should see for himself the vast territories which the Peace Treaty had placed under our unwilling supervision in the Middle East. Political controversy had raged around them, millions of money had been spent in them, and whilst many declared that they would always remain irreclaimable desert others believed that they would become the greatest oil-field of the World."

There you have an epitome not only of the British World policy but of the whole growth of the British Empire. We have invariably had territories "placed under our unwilling supervision." We have always spent a lot of money on them. And invariably they have turned out to be the greatest grain-field or the greatest cattle-field or the greatest cotton-field or the greatest oil-field or something which has proved that the words prophet and profit have some remote connection.

Those who have read The Aeroplane during the past few years may remember that some two years ago one devoted considerable space to explaining that we English are not in



TRANSPORT.—The Supermarine Southampton (two Napiers) flying over the erstwhile German "Imperator" now the Cunarder "Berengaria." Sir Samuel Hoare has this week been flying in the Southampton, as recorded elsewhere.

Iraq and Palestine out of any particular love of the Arab or the Zionist Jew but because there is oil in Iraq even as there was balm in Gilead and corn in Egypt. And here we have the Secretary of State for Air, who in accord with his family tradition is one of the shrewdest business men in the country, tacitly admitting in his very first paragraph that oil is really the prime mover of our high political action in the Middle East just as much as it is the prime mover of our mechanical transport in all the Services.

Of course Sir Samuel does not say this in so many words. But even an amateur psycho-analyst reading that first paragraph can see what was in his mind when he wrote it.

Mr. Churchill's Part.

The first chapter of the book explains the object of the journey and one is glad to see that Sir Samuel makes a handsome acknowledgment of Mr. Winston Churchill's foresight when he says :—" At the Cairo Conference in 1921 Mr. Winston Churchill, confronted with the huge expenditure of £27,000,000 a year upon fifty to sixty Imperial Army units in Iraq, had realised the peculiar fitness of the country for air operations, and had transferred the responsibility for defence from the War Office to the Air Ministry and from the G.O.C. to an A.O.C."

Some day historians will have the decency to acknowledge how much this Empire owes to Mr. Churchill.

It was his policy as First Lord of the Admiralty which built up the Royal Naval Air Service on a base which consisted of a free and independent Aircraft Industry and so saved the Army in the field when in 1915 the German aircraft had got the upper hand of the standardised aeroplanes produced by the Royal Aircraft Factory. It was Mr. Churchill who, with the late Prince Louis of Battenberg, mobilised the British Fleet in July 1914 and called it a Review. And the subsequent history of England and its Empire is full of similar examples of Mr. Churchill's foresight.

This experiment of turning over the control of the Middle East to the Air Force was the prime cause of the journey by Sir Samuel Hoare and Mr. Amery. For as the author says " it became essential for any British Air Minister, who intended to study the use of air in Empire defence, to see for himself the results of the Air Command in the Middle East."

The First Stage.

Their journey began on Mar. 19, 1925. They arrived at Port Said in the orthodox way by rail and steamship. There they were met by Air Commodore Clark-Hall, one of the earliest of British Naval aviators. One remembers him at the aforementioned Naval Review in July 1914 careering over the Solent perched in the extreme nose of a Short " pusher " seaplane experimenting with a quick-firing gun whose recoil was enough to repel the machine backwards against its propulsive power. Nothing of such calibre is used in aircraft even to-day.

Readers of Sir Samuel Hoare's book will do well to remember that he belongs to a very old Quaker family. His manner of writing would indicate as much to students of humanity. One has been fortunate in having a number of Quaker friends and one has never yet met a member of that community who has not possessed a quietly incisive sense of humour and a strong sporting instinct which to the unknowing may seem curiously at variance with the quietist doctrines of the sect.

This sporting sense appears in Sir Samuel's devotion to high speeds. The whole idea of doing the Middle East journey by air is evidence of that quality. And one finds it again in his saying, when he and Mr. Amery landed at Port Said,—" The Directors of the Suez Canal Company had kindly placed at our disposal the quickest motor launch which I have ever seen, and we were soon rushing down the Canal to Ismailia at 40 miles an hour."

At Ismailia the official party found four Vickers Vernons with Napier Lion engines awaiting them. Sir Samuel explains carefully that these machines are normally used as troop or mail carriers and that " while they are excellent for the purposes for which they are required, they differ as much from a 9a or a Bristol Fighter as a motor 'bus differs from a taxi." Evidently speaking for himself he adds " Some of our party would, I feel sure, have preferred to make the journey in small open machines, but the long distances and the amount of luggage made it necessary for us to use these general omnibuses of the desert route."

There were eight persons in the official company from Whitehall. And to these were added Group Captain K. G. Brooke, formerly a Naval officer but now very much an R.A.F. officer, and one or two R.A.F. officers of junior rank.

Trans-Jordania.

The company of travellers made their first landing at Ziza in Trans-Jordania where there is a big aerodrome. Thence they travelled in de Havilland 9as to Amman where the aerodrome is rather small for the big Vernons.

Amman is the headquarters of Colonel Cox, the Civil Commissioner for Trans-Jordania, and is also the capital city for the Emir Abdulla, brother of Feisal, King of Iraq, and son of Hussein, the unhappy late King of the Hedjaz.

Students of the political situation in the Middle East will have gathered that the Hashimite family to whom these kinglets belong is not precisely popular anywhere in Arabia. In fact there are a good many people who consider that in upholding them on their thrones we have backed a series of wrong horses. Of course Sir Samuel gives no hint of this in his book for that would be distinctly a matter of high policy? But his delicious Quaker sense of humour comes out in describing the residence of the Emir Abdulla.

He says :—" Only a short time ago he lived with his court, winter and summer, in his ancestral tents. A visit to London had, however, somewhat surprisingly impressed him with the beauty of Buckingham Palace and induced him to build upon the mountains of Rabbath Ammon a building that, though considerably smaller in size, appeared to me to possess several of the depressing features of its prototype."

Further he relates how the Arabs when they first lived in this palace woke up with headaches every morning and " when it was suggested to them that it might be a good thing to open the windows, they answered with a question which appeared to be conclusive : 'What is the good of having windows if you open them?' "

Sir Samuel's comments on Arab coffee, Arab bagpipes and Russian officers as batmen equally deserve to be quoted but in the first place space is not available and in the second if one quoted everything one would like to, quote there would be no need for any reader of this paper to buy the book.

From Amman the next morning the party flew back to Ziza where they returned to their Vernons.

Air Routes.

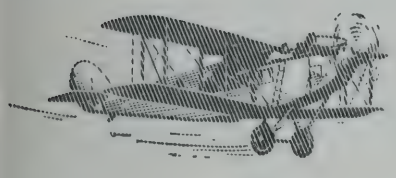
Inside the cover of the book back and front appears a map of the route followed by the official party. At first glance the map seems to indicate that Sir Samuel had personally indulged in a little air racing round the Ziza-Amman course. But one finds that the lines only indicate that this loop off the main route was covered twice.

Parenthetically one may say that the whole map rather suggests that some day when we have our promised daily

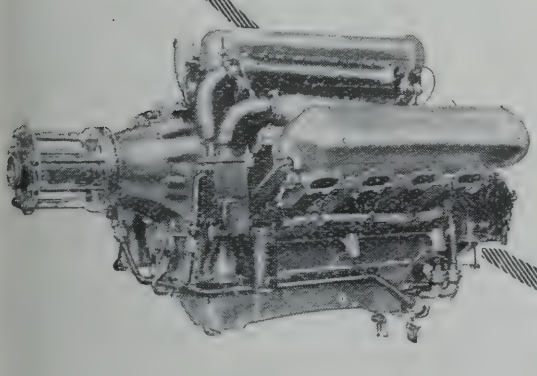


THE R.A.F. STAFF COLLEGE AT FILTON.—A group of officers of the Staff College and members of the staff of the Bristol Aeroplane Co. Ltd. photographed on the occasion of a visit by the staff and students of the Staff College to the Filton Works. Air Vice-Marshal Brooke-Popham, Commandant of the Staff College is seated between Sir Henry White-Smith and Mr. H. J. Thomas. The civilian last but one in the front row on the right is Mr. Frank Barnwell, the designer of the Bristol Fighter and others of the firm's successful machines. Mr. Roy Fedden, the designer of the famous Jupiter and Lucifer engines, is standing immediately behind him. Mr. Fernie, the Bristol Co.'s publicity manager, is on the extreme left of the picture.

Four more World Records for Napier Aero Engines!







At Amsterdam on 16th June, 1925, flying a Fokker aeroplane fitted with 450 h.p. Napier aero engine, Engineer Grasé whilst carrying a load of 500 kg. (1102 lbs.) attained an average speed of 165·7 m.p.h. over 100 Km. and 164·7 m.p.h. over 200 Km.

These speeds are greater than those achieved with a machine carrying a load of 250 kg.

The Fédération Aéronautique Internationale have recognised these performances by Engineer Grasé on the Fokker-Napier as World Records—four in all.

The machine and engine used on these flights were standard in every respect.

May we send you particulars of this record-breaking engine?

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A limited number of a handsomely produced Napier album, illustrating latest type aeroplanes, are available at one guinea, the published price.

airship service to Cairo and when the famous desert route is only a part of the promised Imperial Air line, there may be a possibility of running the King's Cup Race between Cairo and Basra via Baghdad. In those days Cairo will be at least as accessible as is Lympne to-day and the speed machines of the future would certainly take no longer to cover the Cairo-Basra course than some of the King's Cup competitors took to cover the round-England course.

TRANSPORT MACHINES.

Unfortunately we are still far from achieving the perfect commercial aeroplane, for Sir Samuel notes, "A journey of seven hours in a shut machine is a tiring business. The noise of the propellors in the air, the noise of the two great engines on each side of you, and the monotonous outlook combine to make you feel deaf and tired, when, without a moment for recovery, you are expected to leap lightly from the machine and say a few bright words to the guard of honour and the local notables who have come to meet you at the aerodrome."

Such an admission from Sir Samuel, who happens to be one of those fortunate persons who is proof against air-sickness, should incite our aircraft designers to greater efforts in the production of passenger-worthy aircraft.

It is worth while here to recall that sad story of the great Army Review some years ago in Egypt, at which the Air Force set out to display to the assembled notabilities and cosmopolitan tourists the possibilities of troop carriers. A dozen infantrymen with full equipment were embarked in a troop-carrier which was to alight immediately in front of the saluting point. And there the men were to de-'plane with all speed and go into action with rifles and machine-guns.

The machine duly alighted in full view of the Highest in the Land, and for a few horrid minutes nothing happened. Then one man, clad only in a shirt and trousers, staggered out of the door in the fuselage, leaned against the side and continued to be violently ill.

Think of the awul situation if a less airworthy Secretary of State were similarly afflicted before a reception committee of some inferior nation.

BAGHDAD.

Of their arrival at Baghdad Sir Samuel writes,—"The city, which, at least from the air and during the night, looks not unworthy of the glories of Haroun-al-Raschid," a phrase which reminds one of Gilbert's, "She might very well pass for 42 in the dusk with the light behind her." Those many of one's friends who know their Iraq seem to have a similar impression of Baghdad though they express it less delicately.

Sir Samuel's description of his stay in Baghdad is distinctly illuminating. There is a tactful reference to the British Residency about the building of which there was so much ill-informed agitation by anti-waste fanatics some few years ago. People of that kind never seem to be able to realise that when an inferior people have to be governed it is essential that the English Representative should be surrounded by adequate pomp and circumstance.

Even £1,000,000 spent on a palace may be worth while if it saves £10,000,000 or more which might otherwise have to be spent on repressing rebellions. But all that Sir Samuel says is:—"I can affirm that the Residency is a house in every way fitted to be the Headquarters of the British High Commissioner and that under the wise and hospitable management of Sir Henry and Lady Dobbs it is as delightful a Government Residence as I have ever had the pleasure of visiting."

PERSONALIA.

On arriving the Secretaries of State were welcomed by King Feisal's principal aide-de-camp and by a pelican, "the successive friend of Sir Percy Cox and Sir Henry Dobbs, somewhat suspicious of the Whitehall tourists." Captain Euan Wallace, M.P., whose photographs embellish the book, provides at this point a photograph of King Feisal with suite and also one of Sir Samuel Hoare and Sir Henry Dobbs accompanied by that fowl of whom a rhymester wrote:—

"A wonderful bird is the pelican
"His beak can hold more than his—internal economy."

The two photographs distinctly impress one with the Semitic origin of Arab and pelican alike.

Further experiences, official and unofficial, in Baghdad are related in Sir Samuel's own quiet way. And one is only prevented from quoting the story of Ja'far Pasha, the prisoner of war, and the bill for the Army blankets by the desire that it should be read in its proper place in the book itself.

The Air Minister's descriptions of the Big Bugs of Baghdad on whom he paid official or personal calls are most informative, even though he is very careful to avoid any reference to the official subjects on which he talked with them. He gives one an excellent picture of the way in which King Feisal's queer country is run.

One wishes that the author had been a little more explicit as to the difference between Sunni and Shia Mahommedans. And one regrets that he did not tell us a little more about the Sheikh ul Islam, who, according to Sir Samuel, is a Kurd and not an Arab. This would make him of the same stock as the Nordic peoples and not merely a desert Arab.

One would also like to know more about the Naqib of Baghdad, a title which is almost as fascinating as that of the Arkoond of Swat, who inspired one of *Punch's* best poetic efforts. All one learns about him is that he is the keeper of the Holy Sunni Places.

Presumably by way of displaying perfect neutrality the Whitehall tourists were taken by the famous Miss Gertrude Bell, who is now the Honorary Director of Antiquities in Iraq, to visit Kadhimain, one of the three holy Shia cities of Iraq. The description of the "tea of honour" with which the tourists were entertained recalls the Arabian Nights.

MOSUL.

On Mar. 31 the party flew to Mosul. A photograph by Captain Wallace gives one some idea of the evident permanence of the R.A.F. H.Q. at Mosul. In fact all R.A.F. institutions in Iraq have a permanent appearance which recalls that epigram quoted by Major Whittaker, when in Palestine studying the Zionist question for *The Daily Express*, wherein he referred to a certain benevolent society which "came to Palestine to do good and had done very well"—for itself.

There is also a very small but interesting photograph of some Assyrian Levies. One would like to know considerably more about these people. Their uniform in the picture makes them look rather like New Zealand Light Horse.

One is told by R.A.F. people from Iraq that they are the folk of quite a small tribe who are supposed to be the remnants of the people who built up the great Assyrian Empire and that they are in fact about the only really first-class fighting men in that part of the World, barring the Kurds. These Assyrians are said to be very good under discipline and to have the makings of genuine soldiers whereas the ordinary Iraq Levies are very irregular Irregulars.

A charming sidelight on Turkish rule is found in the reference to a marble palace used as H.Q. by the O.C. Iraq Army in Mosul. According to Sir Samuel "Rumour said that a Turkish official, whose total salary had not exceeded £100 a year, had built this palace out of his savings."

The description of a kind of durbar held by the Secretaries of State in Mosul is intensely interesting. An illuminating passage concerns the Chief of the Devil Worshippers, "a sect of about 20,000, who, though disowned by Christians and Moslems alike, live a not disreputable life upon the principle that, as the power of good will will always behave well, it is only necessary to propitiate the power of evil."

Sir Samuel is particularly entertaining on the subject of the Lady Surma, Chieftainess of the Assyrian Nestorians, and one only wishes that he had been more expansive on the subject. One of his most delightful touches of humour occurs when, after remarking that he had brought this lady a letter from her nephew Ishai, the reigning Prince and Patriarch, who is at present being educated at St. Augustine's College, Canterbury, he remarks "He holds the distinction, unique in the history of Patriarchs, of being an excellent football player."

Just a few lines show the Air Minister's absolutely fair outlook on all subjects. He takes care to make a note that in the Garden of the Civil Commissioner's House in Mosul there is a little memorial set up by German pilots to two British flying officers who died near Mosul.—C. G. G.

(To be continued.)

THE REMARKABLE SOUTHAMPTON.

A Supermarine Southampton flying boat, with two 450 h.p. Napier Lion engines, intended as a five-seater reconnaissance machine for Naval Co-operation, was flown from Felixstowe to Cromer on Aug. 11. On alighting at Cromer, the Secretary of State for Air, Sir Samuel Hoare, embarked, and a flight of two and a-half hours' duration along the coast to Grimsby and back was made.

Air Marshal Sir J. M. Salmond and Air Vice-Marshal Sir W. G. Salmond, were also passengers in the machine.

[One believes that it was in 1912 that the late Mr. B. C. Hucks wrecked one of the few then existing seaplanes on the rocks which jut out of the water at Cromer in the most unexpected places.]

The Southampton is quite a remarkable aeroplane. Some time ago it conveyed Air Vice-Marshal Scarlett, A.O.C. Coastal Area, from Felixstowe to Rosyth in about five hours, and a five-course lunch was served on board. On the way back an oil-gauge failed to register and the pilot, thinking that an oil-pump had gone wrong, shut off one engine and flew back the last 150 miles with the other engine alone. Not only did the machine fly, but it actually climbed with one engine, turned against the pull of the engine, and taxied in with one engine.

One believes that the Napier-engined Southampton Supermarine is the only twin-engined machine (land or sea) which has ever performed such a feat.

R·A·F· TYPES — No 3.



THE FAIREY III.D. SEAPLANE.

Of the many types of aircraft which the Fairey Aviation Company have in service with the R.A.F. the III.D. Seaplane is perhaps the best known.

Ever since 1917 when the forerunner of this type was first produced as the FAIREY III. it has been steadily increasing in popularity with the R.A.F. until at the present time it is the most used and most dependable seaplane in the Service.

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THE SAVAGE-BRAMSON ANTI-STALL GEAR IN PRACTICE.

[*The following description has been written specially for* The Aeroplane *by a well-known commercial pilot.*—Ed.]

Your correspondent has had a welcome opportunity of testing the Savage-Bramson Anti-Stall gear in the air, and certain comments, from the pilot's point of view, may be of interest. The particular gear tested was fitted to one of Major Savage's S.E.5as, and for the sake of clearness a brief description is called for.

The instrument consists of a stall-detector and a warning device pneumatically intercoupled. The stall-detector is a horizontal vane facing the air stream, and unstably hinged with reference to it. That is to say the horizontal vane is like the tail of an aeroplane, but travels tail first.

It is carried on a front interplane strut, approximately midway between the planes. The vane is free to move between stops, allowing an angular movement of about nine degrees. It is balanced on its hinge, and its position between the stops is therefore determined by the air stream.

The vane is so set that at all normal flying angles the air strikes its upper surface and so presses it against the lower stop. Just before stalling, however, the wind catches its underside, and flicks it up against the upper stop. In doing so it opens a miniature mushroom valve which in turn brings the warning device into operation through the intermediary of a pneumatic relay, like the rubber tubes of a pianola.

The warning device is a piston and cylinder unit. The piston is attached through a piston-rod and a universal joint to a bracket clamped to the joystick about 1½ inches below its pivot. The cylinder, through a similar universal joint and bracket, is attached to a tubular cross-member of the fuselage in front of the joystick.

The two universal joints allow of free movement of the joystick in all directions, and no additional friction in the controls due to this attachment could be detected.

Normally the cylinder communicates with the atmosphere. But when the stall-detector operates, the relay incorporated with the joystick attachment admits air at about fourteeen pounds per square inch to the cylinder from a small reservoir, fed in this particular case by the standard Viper camshaft-operated air pump.

The gear was first of all tested on the ground and it was found that when the stall detector vane was pushed up by hand a sudden forward pull was felt in the joystick. However, the force required to prevent the joystick from moving forward was only about ten to twelve pounds. When the vane was pushed down again the force on the joystick disappeared.

The machine was thereupon flown. She took off on a bump (it was Hendon Aerodrome) and to prevent her getting a hard second bump the stick was pulled back rather severely. One was immediately reminded of the abnormality of this procedure by a forward kick in the joystick, reminiscent of the "tap" transmitted from instructor to pupil in a dual control machine.

One chose, in the particular circumstances, to ignore the reminder, there being no danger in doing so one foot off the ground, and so the machine continued to feel very nose heavy until she had accelerated sufficiently to reach a normal flying angle.

The nose heaviness then suddenly ceased. At this moment the air speed indicator registered 68 m.p.h. which is a very suitable climbing speed for a normally loaded S.E.5. One therefore proceeded to climb.

During the climb there was plenty of opportunity to watch the vane which remained quite steady in its bottom position.

The machine was then stalled in every conceivable manner. It was stalled in straight gliding without engine, in climbing with engine all out, on flat turns, on steeply-banked turns, etc. In each and every case it was found impossible actually to reach the stalling point without receiving the reminding tap on the stick just beforehand.

In straight flying without engine the gear came into operation when the air-speed indicator registered 40 m.p.h. This was tried over and over again, the air speed being in every case the same within the accuracy of the indicator. As the air-speed indicator in question gave no cause for suspicion this must be regarded as evidence of remarkable self-consistency in the functioning of the stall detector.

It was somewhat surprising to find the gear functioning at 62 m.p.h. on a sharp turn (full throttle). But on repeating the experiment, without giving way to the reminder, the machine put her nose down very deliberately a second or two later, thus proving that the gear takes care automatically of centrifugal overloading.

Stunting could be carried out normally except in so far that if the particular manœuvre involved a stall one was reminded of the fact. When spinning, for instance, the pull on the joystick continued until a normal glide was resumed.

It was found that if the machine was stalled repeatedly in quick succession, there was a tendency for the warning impulse to become weaker. One understands that the number of stalls which can be dealt with in quick succession without any decrease in the strength of the warning depends on the size of the air reservoir. In the present case that number was two. This can hardly be considered a serious disadvantage, for if a pilot flying near the ground gets dangerously near the stalling point twice within a few seconds, being duly warned each time, and then proceeds to do so a third time, he deserves his inevitable fate.

On making a normal "three-point" landing (which, of course, is merely stalling the machine at an altitude of about one foot), the gear comes into operation. This is a little disconcerting at first, and in the opinion of the writer a cut-out should be fitted so that it is left to the decision of the pilot whether or not the gear shall operate when landing.

In conclusion the device did in fact fulfil the purpose for which it is intended. The method adopted for detecting the approaching stall seems particularly reliable and accurate, and has the advantage of dealing automatically with all variations in load. The type of warning employed is appropriate and effective, and it is quite impossible either to miss it or misunderstand it. The presence of the gear interferes neither with normal flying nor stunting.

[As regards landing one learns that a cut-out is actually being incorporated with the device in future models.—Ed.]

Opinions may be divided as to whether a special device is needed for warning the pilot of an approaching stall. Assuming the need, the Savage-Bramson Anti-Stall Gear undoubtedly does the trick.

An Editorial View.

[One would add that personally one regards an anti-stall warning service as essential to all aeroplanes, to Service machines just as much as to Commercial. For example, quite a number of crashes must happen to Army Co-operation machines through pilots stalling while looking over the side at troops on the ground, or when manœuvring to pick up or drop messages. And heavily-loaded troop-carriers or bombers frequently stall when starting or landing. And the majority of deaths are caused by stalling on turns in trying to return to an aerodrome or getting into a small ground.

All these stalls can be avoided by the Bramson device. And this device has the great advantage of giving a warning which cannot be ignored because it operates on the sense of touch. A light, or other visual indicator may not be seen because the pilot's eyes are busy on something else, and an audible warning may very easily be inaudible under certain circumstances. But a kick on the control stick cannot be ignored so long as the control operates.—C. G. G.]

Hail and Farewell.

On Aug. 25, Commander J. Towers, who for the past two and a-half years has been Naval Air Attaché to the American Embassy in London, will leave England on his return to the United States, his tour of duty having been completed. He will be replaced by Commander Burg, U.S.N., who has already arrived in this country.

There will be very great regret on all sides at the departure of Jack Towers who has made himself universally popular over here. He is, one understands, to take up his duties with a Squadron on the Pacific coast. All will hope that it will not be long before he comes over here again, at least on a visit, if not on duty.

At any rate, should we ever regain the Schneider Trophy, it is obviously the duty of the American Government to send him over here to reperesent them at the event when held here. For it is agreed on all sides that no Schneider Trophy race in England could be complete without Jack Towers.

To Commander Burg one offers greetings and best wishes for a pleasant and successful sojourn in this country. Those who have met him are already convinced that, in the fulness of time, when his tour of duty comes to an end, we shall all mourn his departure as much as we now mourn the departure of Jack Towers.—G. D.

Schneider Trophy Machine.

It is understood that the Supermarine monoplane (Napier) is now completed, and will be tested almost at once. Those who have seen it say that it is about the cleanest job in racing machines that they have ever seen. It will be flown by Mr. Henri Biard.

There is no news at the moment of the Gloucester machine, but there is reason to believe that it is nearly completed also. It will be flown by Mr. Hubert Broad.

The new American Curtisses are not yet ready. It is understood that the pilots will be Lieuts. Rittenhouse, Gorton, and Ofstie.

There is no information as to the progress of the Italian machines.

Both Mr. Broad and Mr. Biard have been getting in practice on the Bamel-on-floats, at Felixstowe, lately. Reports state that they both handle her extremely well, and she is a good step to the real racers as she does about 200 m.p.h.

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THE ROYAL AIR FORCE.

The London Gazette.

War Office, Aug. 11.

General List.—Temp. Maj.-Gen. Sir J. F. A. Higgins, K.B.E., C.B., D.S.O., A.F.C. (Air Vice-Marshal, R.A.F.), relinquishes temp. comn., July 31. (Correction.)

Air Ministry, Aug. 11.

R.A.F. General Duties Branch.—A. P. Wayte is granted a S.S comn. as a Plt. Off. on probation with effect from, and with seniority of, Aug. 5.

Flg. Off. A. P. C. Hannay, M.C. (Lt., Cameron Hldrs.), is re-seconded for 1 year's duty with the R.A.F. (July 29).

Plt. Off. L. W. Coupé Annable resigns his S.S. comn. (Aug. 12). Flg. Off. Sir R. A. St. John Leeds, Bart. (Lt., R.E., retd.), relinquishes his S.S. comn. on account of ill-health (Aug. 12). Flt. Lt. J. P. H. Hayes (Capt., Lancs. Fus.) relinquishes his temp. comn. on retirement from the Army (Aug. 1).

Stores Branch.—The S.S. comns. of the following Plt. Offs. on probation are terminated on cessation of duty (Aug. 1):—F. Scutt, D. G. Vaughan, C. E. Burke.

Medical Branch.—Flg. Off. F. K. Wilson, M.B., is promoted to the rank of Flt. Lt. (Aug. 8).

Reserve of Air Force Officers.—D. W. Forshaw is granted a comn. in Class A, General Duties Branch, as a Flg. Off. on probation (Aug. 4).

The following are confirmed in rank:—Flg. Offs.—S. C. O'Grady, M.C. (Aug. 10), K. G. Styles (Aug. 10). Plt. Offs.—J. W. Brown (July 14), H. M. Samuelson (Aug. 3), L. C. Hillman (Aug. 10).

Appointments.

Week ending Aug. 17.

General Duties Branch.—Wing Commanders B. L. Huskisson, D.S.O., to R.A.F. Base, Gosport, pending taking over command, 22/8. C. W. H. Pulford, O.B.E., A.F.C., to H.Q., Coastal Area, pending disposal, 17/8. C. C. Miles, M.C., to H.Q., Coastal Area, for technical Staff duties, 5/8. F. E. T. Hewlett, D.S.O., O.B.E., to R.A.F. Base, Calshot, 7/9.

Squadron Leaders R. G. Gardner, D.S.C., to H.Q., Coastal Area, 8/8. W. R. D. Acland, D.F.C., A.F.C., to R.A.F. Training Base, Leuchars, 8/8. H. Dawes, M.B.E., to H.Q., Special Reserve and Auxiliary Air Force, 18/8. E. B. Rice, to No. 6 Group H.Q., Kenley, 14/8.

Flight Lieutenants C. H. Awcock, O.B.E., to A.A.E.E., Martlesham Heath, 29/6. A. L. A. Perry-Keene, to Armament and Gunnery School, Eastchurch, 4/8. H. P. G. Leigh, to I.A.A.D., Henlow, 1/7. G. H. Harrison, D.F.C., to Air Ministry, 1/9. H. W. Heslop, to Armament and Gunnery School, Eastchurch, 31/8. C. G. Halliday, to No 1 School of T.T. (Boys), Halton, 11/8. H. O. Fellowes, to No. 1 S.D., Kidbrooke, on transfer to Home Estab., 27/7. D. W. Clappen, to H.Q., Coastal Area, 10/9. P. S. Jackson-Taylor, to No. 24 Sqdn., Kenley, 14/9. D. W. King, to M.T. Repair Depot, Shrewsbury, 1/10. S. T. Freeman, M.B.E., to H.Q., Coastal Area, 1/10. F. P. Adams, to Reception Depot, West Drayton, 24/9. H. L. Macro, D.F.C., A.F.C., to R.A.F. Training Base, Leuchars, 5/9. L. E. M. Gillman, to No. 58 Sqdn., Worthy Down, 1/9. C. T. Walkington, to R.A.F. Base, Calshot, 6/9. C. R. Richardson, to H.Q., Inland Area, 7/8. R. T. B. Houghton, A.F.C., to M.T. Repair Depot, Shrewsbury, 13/8. E. W. Broadberry, M.C., to Air Ministry, 5/8. C. J. W. Hatcher, A.F.C., to M.A.E.E., Felixstowe, 13/8. G. C. O'Donnell, D.F.C., to R.A.F. Depot, 1/8. T. C. Traill, D.F.C., to R.A.F. Depot, 10/8. A. E. Case, to R.A.F. Reception Depot, West Drayton, 10/8. R. J. Rodwell, to R.A.F. Staff College, Andover, 15/9.

Flying Officers G. Horsfield, to R.A.F. Depot on transfer to Home Estab., 12/8. I. Glyn-Roberts, to Record Office, Ruislip, 29/7. J. B. Lynch, C.B. Wincott and I. M. Burd, M.C., to R.A.F. Training Base, Leuchars, on transfer to Home Estab., 30/7. C. Ayling, to No. 2 Sqdn., Manston, 17/8. H. A. Haines, D.F.C., to School of T.T. (Men), Manston, 29/6. G. Lacey, to No. 3 S.D., Milton, 20/8. A. H. H. MacDonald, to No. 22 Sqdn., Martlesham Heath, 12/8. J. L. Wingate, to Armament and Gunnery School, Eastchurch, 4/8. (Hon. Flt. Lt.) W. F. R. Gough, to No. 43 Sqdn., Henlow, 22/7. B. H. Godfrey, to No. 1 F.T.S., Netheravon, 13/8. C. P. M. Caillard, and F. W. Sinclair, D.F.C., to No. 1 School of T.T. (Boys), Halton, 13/8. H. H. S. Scott, D.S.M., to R.A.F. Base, Gosport, 7/8. S. Herbert and O. R. Pigott, to Boys' Wing, Cranwell, 7/8. G. F. Blackburn and I. Glyn-Roberts, to R.A.F. Depot, 29/7. W. N. Lancaster, to the Packing Depot, Ascot, 10/8. C. W. McK. Thompson, to A.A.E.E., Martlesham Heath, 13/8. J. M. Darroch, to Record Office, Ruislip, 29/7. G. M. Trundle, to No. 216 Sqdn., Egypt, 4/7. J. W. Rose, to H.Q., Egypt, 7/8. E. A. Hodgson, to No. 208 Sqdn., Egypt, 4/7. F. W. Wrench, to No. 13 Sqdn., Andover, 7/10. H. W. Beck, to R.A.F. Depot on transfer to Home Estab., 1/8. R. W. Holden, to No. 60 Sqdn., India, 4/7.

Pilot Officers H. R. Gillespie, to No. 2 F.T.S., Digby, on transfer to Home Estab., 20/7. A. P. Wayte, to R.A.F. Depot on appointment to a S.S. Comn., 5/8. E. C. Boucher, to No. 23 Sqdn., Henlow, 1/7. J. A. T. Ryde, to No. 43 Sqdn., Henlow, 13/7.

Medical Branch.—Squadron Leader A. J. Brown, D.S.O., to R.A.F. Officers' Hospital, Uxbridge, 13/7.

Flight Lieutenant A. Briscoe, M.B., to R.A.F. Officers' Hospital, Uxbridge, 13/7. Flight Lieutenant (Dental) A. B. H. Cole, to H.Q., Halton, 1/8.

Flying Officer F. L. White, to A.A.E.E., Martlesham Heath, 13/8. Flying Officer (Q.M. Medical) F. W. Goodread, to R.A.F. Officers' Hospital, Uxbridge, 13/7.

Stores Branch.—Flight Lieutenants C. E. Cullen, to M.T. Repair Depot, Shrewsbury, 11/6. H. V. Robbins, to No. 1 Stores Depot, Kidbrooke, 10/8.

Flying Officers J. C. Shakeshaft, to No. 502 Sqdn., Aldergrove, 17/8. W. Bourne, to No. 1 S.D., Kidbrooke, 10/8.

Pilot Officers A. J. Walker, to No. 1 S.D., Kidbrooke, 10/8. The undermentioned Pilot Officers are all posted to No. 1 S.D., Kidbrooke, on appointment to S.S. Comns. (on probation) with effect 10/8:—E. H. Broad, L. F. Caunter, E. G. M. Charleson, R. H. Clay, J. Cuming, D. J. Divett, G. H. Doveton, F. W. Felgate, E. J. Fishenden, C. P. Marshall, P. J. Mote, P. P. S. Rickard, L. Taylor, J. E. Welman.

Naval Appointments.

The following appointments were made by the Admiralty on Aug. 15:—

Lieuts. (Flg. Offs., R.A.F.).—L. C. Sharman, T. O. Bulteel, K. A. B. Hutson, R. C. Allen, J. N. Sparks, R. A. Aldridge, G. F. Renwick, R. H. Langton, E. W. E. Lane, W. M. Healing, F. G. Wynne, T. H. Villiers, G. H. Birley, A. A. Murray, F. H. G. Oliphant, G. Willoughby, and E. O. F. Brice, to R.A.F. Training Base, Leuchars; R. J. Berry, A. P. Colthurst, and J. E. Wallace, to R.A.F. Base, Gosport (Aug. 10).

Royal Marines.—Lieuts. (Flg. Offs., R.A.F.).—A. B. Woodhall, to R.A.F. Base, Gosport; R. H. S. Teek, T. L. G. Bryan, C. F. L. Holford, and O. C. Jones, to R.A.F. Training Base, Leuchars (Aug. 10).

Staff Changes.

The Air Ministry announces the following appointments:—

Air Commodore E. R. Ludlow-Hewitt, C.M.G., D.S.O., M.S., to the Royal Air Force Staff College in command vice Air Vice-Marshal H. R. M. Brooke-Popham, C.B., C.M.G., D.S.O., A.F.C. To date Apr. 1, 1926.

Air Commodore C. L. N. Newall, C.M.G., C.B.E., A.M., to the Air Ministry as Deputy Chief of the Air Staff vice Air Vice-Marshal J. M. Steel, C.B., C.M.G., C.B.E. To date May 1, 1926.

Air Commodore Ludlow-Hewitt was in the Royal Irish Rifles and joined the R.F.C. before the outbreak of war in 1914. He commanded a Squadron, then a Wing, and finally a Brigade in France and then returned to England in charge of Training. At the time of the Armistice he was again overseas commanding a Brigade.

In June, 1919, he was appointed Deputy Director of Training and Organisation at the Air Ministry. In February, 1922, he became Air Secretary to the Secretary of State for Air. He was Air A.D.C. to His Majesty the King from July, 1921, to June, 1923, when he was promoted to the rank of Air Commodore. He is at present President of the Aerodrome Board.

Air Commodore Newall was one of a small group of officers belonging to the Indian Army who were flying at Farnborough when war broke out in 1914. He was immediately posted to a new Squadron of the R.F.C. then forming. He served with distinction in the R.F.C. during the War, and at the time of the Armistice was a Brigadier-General with Sir Hugh Trenchard in the Independent Force, R.A.F.

In August, 1919, he was appointed Deputy Director of Personnel and in August, 1922, he became O.C. No. 1 School of Technical Training (Boys), at Halton. On the formation of the Special Reserve and Auxiliary Air Force he was appointed Air Officer Commanding. He was Air A.D.C. to His Majesty the King in 1923 and 1924.

A Fatal Accident.

The Air Ministry regrets to announce that as a result of an accident near Ur, Iraq, to a D.H.9a, of No. 84 Squadron, Shaibah, Aug. 12, Plt. Off. John Jellett FitzGerald, the pilot of the aircraft, was killed, and No. 348244 AC.1. Frank Edward Leatherdale, was slightly injured.

A Correction.

The Air Ministry announces that the correct description of the pilot reported killed in the flying accident at Hinaidi, Iraq, on Aug. 5, is No. 355635, Sergeant John Reginald Gaze, and not as notified in the announcement of Aug. 6.

The Calshot Accident.

The Air Ministry regrets to announce that as a result of an accident at Calshot to a Flying Boat F.5, of R.A.F. Base, Calshot, on Aug. 16, No. 326065 AC.1. Reginald Frederick Charles Copsey was killed, Flt. Lt. Norbert Marie Sackville Russell, the pilot of the aircraft, Flg. Off. Robert Collins, and No. 103860 Cpl. Herbert Essam, being severely injured.

The Southampton Coroner held an inquest on Aug. 17 at Calshot Air Station on the body of Aircraftsman R. F. C. Copsey, 22.

Flt. Lt. S. Russell said that he was in charge of flying boat F.54039, and was carrying out night flying operations in the Solent on Saturday night. He returned to Calshot at 12.10 a.m., and received the signal to descend. As he came down he noticed that the surface of the water was extremely glassy. He commenced to flatten out, looking at the flare signals to gauge his height. Then the machine hit the water, the bows first. The pilot's combing was telescoped into the pilot's seat, and he was entangled in the wreckage. He sank with the machine, but managed to disentangle himself and rose to the surface. He found the water covered with lighted petrol and his own head became enveloped in flames, so he dropped back into the water and was rescued shortly afterwards.

Medical evidence showed that the dead man had received extensive injuries to the head and neck, which must have been instantly fatal.

The coroner referred to the great gallantry of Flg. Off. Sunnucks, who swam under the water, avoiding the flaming petrol, and thus reached the machine and saved two of the occupants.

A verdict of "Death from misadventure" was returned.

The Times account of the accident states that had it not been for the plucky work of rescue by Flg. Off. Stephen R. Sunnucks, Flg. Off. Collins and Flt. Lt. Russell would have perished in the flames, which quickly enveloped the machine when the petrol tank burst on hitting the water. This officer, who was in charge of one of the fire-fighting motor-boats which rushed to the scene of the accident, dived into the water fully clothed, boarded the burning aeroplane, and released Russell and Collins, with whom he swam with great difficulty to safety. He again swam back and made a futile effort to rescue Copsey, who must have been killed instantly. Twice he mounted the hull of the aeroplane, but each time he was driven back by the heat of the flames.

The Reserve of Air Force Officers.

The Air Ministry announces that the expansion of the R.A.F. which is now proceeding requires corresponding increases to be made in the strength of the Reserve of Air Force Officers. During the past few years the pilots' section of the Reserve

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England to South Africa	6,281 miles
England to Australia	11,500 miles

These flights were accomplished without any change of engines en route

"The Britannia Trophy, presented by the Royal Aero Club for the best performance in the year, has been awarded for the year 1924 to Wing-Commander Goble and Flight-Lieutenant McIntyre for their flight round Australia in a Rolls-Royce-Fairey."

"Daily Telegraph," March 26th, 1925

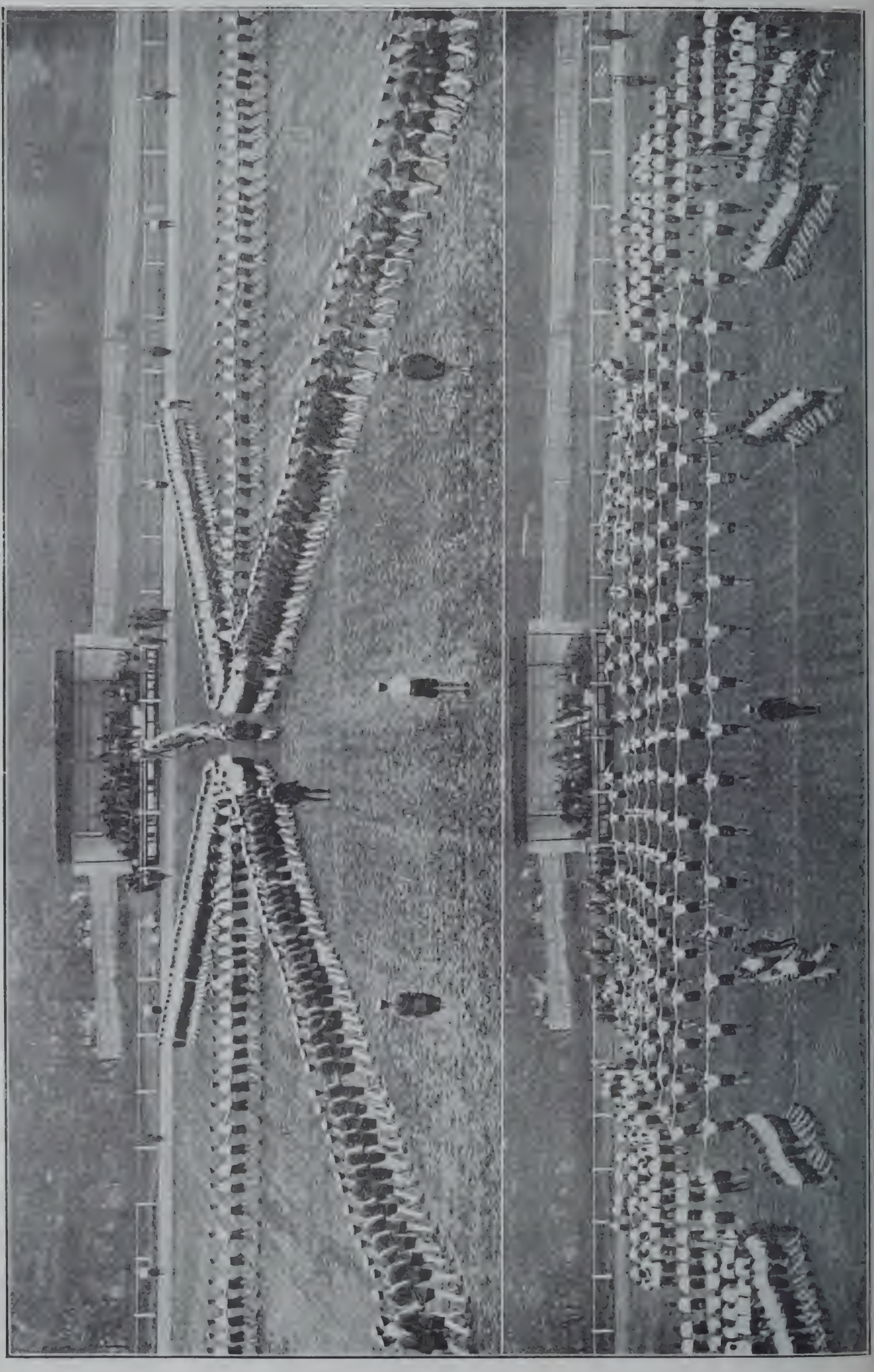
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AN UNDRESSED REHEARSAL.—Airmen Recruits of the Royal Air Force, under Flight Lieutenant Wombwell, practising for the Torchlight Tattoo at Wembley which begins this week.



THE D.H. TYPE 54 "HIGHCLERE"

650 H.P. ROLLS-ROYCE CONDOR ENGINE.

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The Aeroplane, August 12th, 1925.

The above photograph shows the "HIGHCLERE" taking off from Stag Lane Aerodrome.

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27-60 H.P. CIRRUS ENGINE.

The de Havilland "MOTH" which has been described by FLIGHT as "the most practical light aeroplane yet produced" has been selected as their standard equipment by all the Light Aeroplane Clubs in Great Britain.

The photograph below shows the first batch of "MOTHS" ready for delivery.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

has been maintained, on the one hand, by the transfer of short-service commission officers, on completion of their regular service in the R.A.F., and, on the other, by the engagement of war-time pilots and civil pilots.

The Air Force is still prepared to engage ex-pilots for service in the Reserve, and in addition it has been decided to institute a new scheme which will enable the Air Force to draw upon the younger generation which has not had any flying experience, and applications are accordingly invited immediately from candidates for vacancies which now exist in the Reserve of Air Force Officers

Applicants, who should be of good education and physique, but need not have had any previous flying experience, must be not less than 18 or more than 25 years of age, though consideration might be given in certain circumstances to suitable applicants who are slightly over the latter age.

Reserve Commissions are granted in the first place for 5 years, but at the end of this period extension may be allowed at Air Council discretion for further periods each of not more than 5 years.

Flying training, which will be arranged, as far as Service requirements admit, to take place at the civil flying school which is most convenient to the officer, will consist of a 3 months' course during the first 6 months of service, and 6 hours' solo flying during the second 6 months. In each subsequent period of 12 months' service he will carry out 12 hours' solo flying.

When undergoing training, or if called up for continuous service in an emergency, a Reserve officer will receive, generally speaking, the same pay and allowances as an officer of the same rank and branch on the active list. The present rates for a Pilot Officer, not provided with quarters, etc., amount to £1 4s. 11d. a day. In addition an annual retaining fee of £30 is payable, subject to compliance with training regulations.

Application forms and further details can be obtained by applying in writing to the Secretary, (S.7 Reserve), Air Ministry, Adastral House, Kingsway, W.C.2.

Army Manoeuvres.

The training of the Expeditionary Force is now taking place. Brigade training will be completed by Sept. 9 and Divisional training will begin on Sept. 3, and finish on Sept. 19. The whole of the troops will come into the Army Manœuvres operations from Sept. 22 to 25.

The part to be taken by the R.A.F. is described by the Military Correspondent of *The Times* on Aug. 15, as follows :—

The Royal Air Force have made elaborate arrangements for co-operating with the troops during the whole period of training in all the camps and during the actual manœuvres.

The air squadrons specially affected are the 2nd, 4th, 13th, and 16th Army Co-operation Squadrons, but various other types will also be employed, including the 207th and 39th long-distance reconnaissance and day bombing squadrons and the 25th and 56th single-seater fighter squadrons.

In work already witnessed I have noticed that great strides have been made since last year in co-operation. Many Army officers have been given experience in flying, and some have attended coures at the R.A.F. School of Co-operation at Old Sarum.

Air officers have been making a special study of military problems and requirements. I think that the opinion is almost universal that for co-operation to work efficiently it is necessary for individual R.A.F. officers in the co-operating squadrons to remain in them as long as possible; some think for their whole time.

Air Affairs in Parliament.

SHORT-SERVICE COMMISSIONS.

In the House of Commons on July 29, in reply to a question by Capt. Brass, the Secretary of State for Air said that 234 officers of the General Duties Branch of the R.A.F. who were granted short-service commissions in 1919 and 1920 had been transferred to the Reserve, that 19 more were due for transfer in 1925, and 151 during 1926. He said that 558 short-service commissions in the General Duties Branch were granted in 1919 and 253 in 1920. Permanent commissions had been granted to 190 of these officers.

THUNDERSTORMS.

In the House of Commons on Aug. 7, Commander Bellairs asked the Secretary of State for Air whether the new airships and the reconditioned airship are to be filled with hydrogen or a mixture of hydrogen and helium; and whether experience shows that it would be unsafe to discharge hydrogen in a thunderstorm? Sir S. Hoare: As regards the first part of the question, it is proposed to use hydrogen for the experimental flights contemplated in the present programme. As regards the second part, I understand that it is the practice among airship pilots to avoid discharging hydrogen in the neighbourhood of thunderstorms, but no actual evidence of the dangerous results of such discharge is available.

Commander Bellairs asked the Secretary of State for Air whether he is aware of the great prevalence of thunderstorms in the neighbourhood of Java; to what extent R.33 deviated in her journey to America in order to avoid thunderstorms; and whether the tenders for the new airship, and the design of the Government airship, make specific provision for safety against lightning? Sir S. Hoare: The answer to the first part of the question is in the affirmative; to the second, that the R.34 (the airship concerned) deviated a distance of approximately 50 miles to skirt a thunderstorm in her outward journey; the third, that the position in regard to the contract airship was explained in my reply to my hon. and gallant friend on Mar. 17 last, and as regards the Government airship, that the question of safety precautions against lightning is under consideration.

GERMANY.

In the House of Commons on July 20, Lieut.-Col. Sir F. Hall asked the Secretary of State for Air whether his attention has been called to the fact that a Dutch Company of aeroplane constructors have recently received an order for a thousand full-strength aeroplanes, which are being paid for through a German bank; if he can state what is the number of such machines which are now under German ownership and control although not actually constructed in that country; and whether, in view of the importance of the matter, the Allies have made any representations to the German Government on the subject? Sir P. Sassoon: As regards the first part of the question, I understand that there have been rumours on the subject but I cannot accept any responsibility for their accuracy. As regards the second part of the question I have no information, and the third part does not, therefore, arise.

[If there be any truth in the rumour, the probability is that the machines are for Russia. One knows that there has been difficulty in getting payment direct from the Russian Government for aeroplanes supplied, but possibly some German bank may hold Russian property which permits it to guarantee payment against deliveries.—Ed.]

THE AIR MINISTRY'S RENT.

In the House of Commons on July 21, in reply to a question by Mr. Briggs, the Under Secretary of State for the Home Department said that the rent of Adastral House was £40,000 per annum, and the lease was one of 21 years from March, 1919. There were no other suitable buildings available for the Air Ministry.

The Egypt-India Civil Air Route.

The Air Ministry announces that arrangements for the opening of a Civil Air Route between Egypt and India have so far progressed that provisional Heads of Agreement have been concluded between the Air Ministry and Imperial Airways Ltd. for the operation of a weekly service in each direction between Kantara and Karachi.

The maximum annual subsidy payable will be £87,000, and the duration of the agreement will be five years.

Certain officials of the company together with the Director of Civil Aviation will leave this country in the course of the next few days in order to make a detailed survey of the route.

The Air Express Company Limited.

The Air Express Company Ltd., of Croydon Aerodrome, a private Company recently formed by Messrs. H. R. and A. H. Trost, with the object of specialising as an Air Transport Agency, have been appointed British Managing Agents for the passenger and goods traffic on the important and extensive systems of air lines which comprise the Junkers-Luftverkehr A.G., Berlin; the Nederlandsche Wereldverkeer Maatschappij, Amsterdam; and the Europa-Union, Berlin. With these are also associated the Aero-O.Y., Helsingfors; the Oesterreichsche Luftverkehrsgesellschaft A.G., Vienna; and the Astra Aero A.G., Zürich; the Dansk Lufttransport A.S., Copenhagen; the Aeronaut A.S., Reval; the Lett-Laendische Luftverkehrs A.G., Riga; and the Danziger Luftpost G.m.b.H., Danzig.

An arrangement has been made with Imperial Airways Ltd., in accordance with which the Imperial Service between London and Amsterdam will be flown on and from Aug. 10 last with a large aeroplane (except Sundays) in each direction, connecting at Amsterdam with the services of the Aerotransport Company, running from Amsterdam via Hamburg to Denmark and Sweden with connections to Norway and Finland; also connecting at Amsterdam with the services of the Nederlandsche Wereldverkeer Maatschappij, to Essen and Berlin, with connections at these places with the Europa-Union system to Switzerland, Austria, Hungary, Germany, Sweden, Denmark, Danzig, Poland, Esthonia, Latvia, Lithuania and Finland.

Thus some 30 important European cities are being connected by air lines with London. Travellers and goods can be booked through by air to such well-known centres as, Helsingfors, Reval, Riga, Memel, Königsberg, Danzig, Breslau, Budapest, Vienna, Munich, Geneva, Frankfurt, Leipzig, Dresden, Berlin, etc., etc.

Tickets and information may be obtained from Imperial Airways Ltd., the Air Express Co. Ltd., Thos. Cook and Son Ltd., and the leading tourist and freight agents.

Sir Henry Fowler.

The Directors of the London Midland and Scottish Railway have appointed Sir Henry Fowler to be Chief Mechanical Engineer, in succession to Mr. George Hughes, who has retired.

During the War 1914-18 Sir Henry served as Director of Productions at the Ministry of Munitions, Superintendent of the Royal Aircraft Factory, and Assistant Director-General of Aircraft Production at the Ministry of Munitions.

He was President of the Institution of Locomotive Engineers from 1912 to 1914, and of the Institution of Automobile Engineers from 1920-21. Since the grouping of the railways he has been Deputy Chief Mechanical Engineer of the L.M.S.

His many friends concerned with aviation will rejoice over Sir Henry's latest promotion, and will wish him all good fortune.

Wing Bracing.

The following letter has been received :—

Sir,—The writer of the article entitled "The Imperial Airway," in your current issue criticises the use of single tie-rods in the lift truss.

May I point out that in bracing of this type the duplication is effected by means of the incidence bracing, and that experience with broken wires has repeatedly shown this to be entirely satisfactory. Provided this form of duplication is properly designed it is obviously better and safer than direct duplication of the lift wires.

(Signed) C. C. Walker,
Stag Lane Aerodrome.

"GLOSTER"

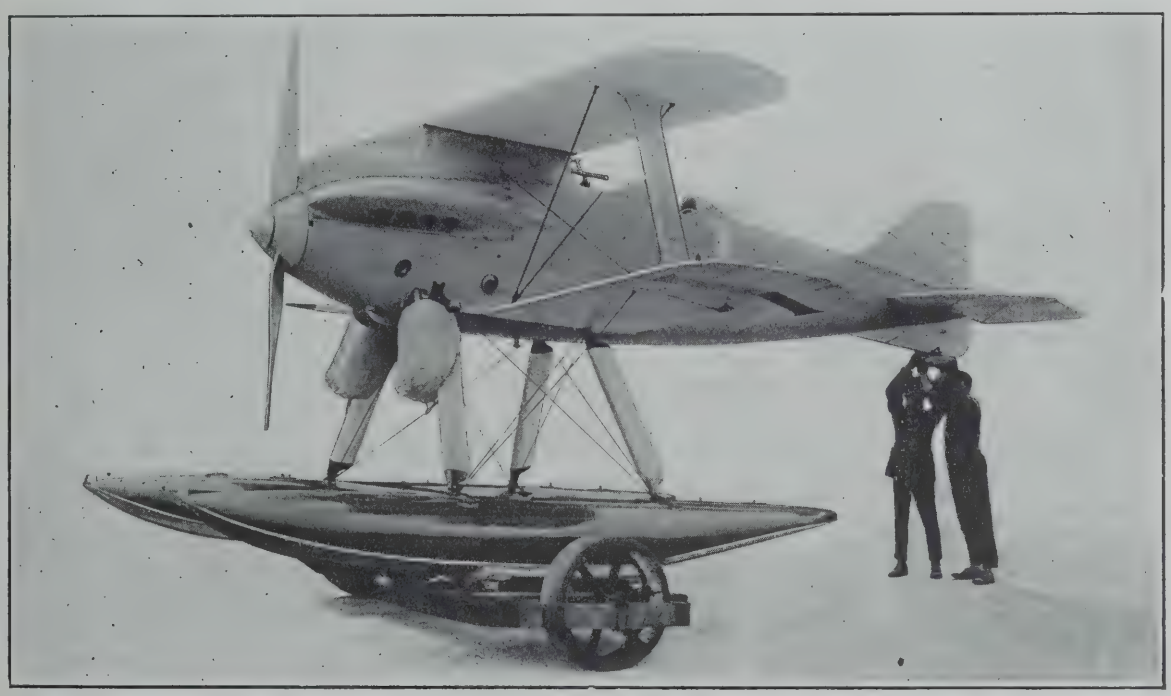
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WINNERS OF THE AERIAL DERBY, 1921-1922-1923.
HOLDERS OF THE BRITISH SPEED RECORD, 212.2 M.P.H.
RECORD CLIMB OF 19,500 FT. IN 11 MINS. 34 SECS.

(Machine in each of above events fitted with Napier Lion engine.)

Illustrated Catalogue on application.

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THE DEFENCE.—(*Concluded.*)

(A Story of the near future.)

By Observer Officer A. J. INSALL, late R.A.F.

III.

"Switch is off—contact!"

O'Reilly wriggled into a more comfortable position as his engine burst into song, and watched his revolution counter creep back to the hundreds as he quickly throttled down.

Then, catching sight of the Duty Officer's lowered arm, he waved his right hand above his head and held in the control lever with his left. A couple of white apparitions flitted in from either side and snatched at the cords fastened to the "chocks" under his wheels. O'Reilly glanced to right and left and slowly opened the throttle, pushing forward, as he did so, the control lever between his legs. Then he directed his eyes towards the flare path which came racing towards him out of the fog. The white face of the Flight-Sergeant slipped by on his left; he felt rather than saw the salute as he passed, and he was alone in the broad "cul-de-sac" of the taking-off flares, heading straight for its extremity, with his tail-skid well clear of the ground, and his control lever gradually coming back to the vertical.

One bump, a pause, then another, and the end of the flare-path was behind him and below; ahead was a wall of dense obscurity, white as the whitest snow, concealing the ground beneath and blanketing the moon above. O'Reilly stared at his instrument board, observed the speed of his engine, its temperature and its oil supply, watched the rate of his ascent, corrected a slight cant to the right with a touch of his control-lever which would have shamed a baby's caress, looked at the machine-gun heating indicator, let his eye dwell for an instant on his oxygen manometer and tried to remember the second line of the song which commences:

"Oh, do not despise the advice of the wise"

.

"Hullo, 'B' Flight! Are you in position? Are you in position, 'B' Flight?"

The voice of the Duty Officer was less clear than usual, and O'Reilly as he pushed in the transmitter plug and prepared to answer the inquiry, wondered if his also would show the effects of the "fog-throat" from which nearly all the squadron was suffering. He observed the position of the five machines in front of him, cleared his throat and muttered into his mouthpiece:

"Hullo, 509! 'B' Flight in position heading S.S.W. Altitude 32,600. Visibility good."

Waiting for a moment until he had received acknowledgment, he pushed the mouthpiece aside and glanced down through the three-ply glass of his cockpit window towards the earth. The moon, riding in the south above him, illuminated, beneath, the solid bank of fog through which the aeroplanes had recently climbed, O'Reilly noted with mixed feelings that it was now moving swiftly inland from the sea. On his right lay London, dark as the pit, yet to O'Reilly visible in all its essential details. Looking long and earnestly he made out Hyde Park and Buckingham Palace.

"What a target!"

The words fell from his lips in a whisper, and he was startled to hear at his side the gruff tones of the Duty Officer inquiring, monotonously, whether "B" Flight was calling. "Do you want us, 'B' Flight?"

"No, my mistake; forgot to unplug, 509!"

O'Reilly corrected his omission, and turned again to contemplate the darkened depths below, while his machine, locked in direction and angle with the remainder of the formation, moved across the dark vault of the heavens close in the wake of her consorts.

Now almost directly underneath, lay the mouth of the Thames; but it was hidden from view by the curtain of fog. O'Reilly followed it by guesswork until his eyes picked it up in reality at Erith. As he looked, he made a rapid calculation in his head and spoke aloud:

"An hour, I should say, at this rate—unless the wind gets up."

Which does not perhaps convey to the reader what was in O'Reilly's mind. It was a simple enough thought; it concerned the possibility of the fog reaching and covering the darkened capital, and O'Reilly was well aware that if the fog took root, it would not make things much easier for the machines aloft even if it did afford protection to the city. Landing through fog was never pleasant, while if anything went wrong with the wing-tip lights and the aerodrome was not within reach.

O'Reilly looked at his clock. It was ten minutes to twelve. As he looked, the voice of Soule struck on his ear—Soule, the leading pilot of the "Vee," whom he could discern some eighty feet ahead fixed in space at the head of the Flight—saying in tense tones that his engine was overheating and that he was dropping out, and savagely cursing his luck.

O'Reilly attempted to pacify him, told him there would be time for him to collect another mount and rejoin anon, and bade him hurry; then, as the gaunt outline of Soule's machine broke away from the formation and sped plummet-like towards the earth, he called up one Pettigrew, commanding the aeroplane searchlights at Romford, and informed him that "B" Flight of 509 Squadron was, for the time being, one machine short. As he repeated the news to "A" and "C" Flights, for information, he received an answer from the searchlight commander, thanking him, and informing him in his turn that it was understood that Queen Anne was deceased. "We are not asleep down here, O'Reilly!"

Forty-five thousand feet below, in his vaulted control room under the bed of the Thames, the Defender-in-Chief chortled into the loud-speaker of the master-receiver and almost lost the fainter sounds which came through on the "Hush-Hush" circuit and which told the director of things and no one else, that it was Norwich speaking and that the enemy, heading S.S.W., was at that moment being engaged over King's Lynn by the squadrons of the northern defence.

.

IV.

To Ivan Mohilef, pilot of the leading machine in the Sixth Group and Captain of the Fleet, it appeared that the raid was doomed.

Of the seven groups composing the original force, his, and his alone, had succeeded in passing the outer defences unchallenged. Somewhere behind him, where the searchlights groped and pointed and the sinister threads of fire from the "tracer" shells stabbed relentlessly upwards, the remaining groups were fighting their way inland—fighting desperately against terrible odds.

Ivan wondered whether the lynx-eyed Durakhin, in his endeavour to evade the searching fire of the coastal guns, had seen in time the massed patrols hurrying down to fall on the fleet as it came in from the Wash: they had passed so close to Ivan that, for a time, he had felt convinced his own group had been caught too.

But by some whim of the gods he had slipped through only to find the earth blanketed impenetrably in a fog which, rolling in from the Suffolk coast, seemed to him like a screen purposely drawn across space to defy him.

And now behold him with but a vestige of his might, within striking distance of an objective, which, for all he knew, might be immediately below!

In his rage and mortification he cursed the fates which had brought him through, cursed the meteorological office which had failed to warn him of the fog, and bit his lip savagely.

He did not notice, any more than did Serge Piramidoff in the rear machine of the group, the community of swiftly-moving shapes passing across the face of the moon above, as, with the unchecked tears of disappointment welling from his eyes, he commenced a slow "wheel" to starboard. Could he but have seen them, wheeling, as he wheeled, straightening out as he straightened, his danger-sense might have quickened.

As it was, Ivan's mind was concentrated on the fog-bank below him. Blinking back his tears, he looked hopelessly at the white expanse.

Was there no means of deciding where lay the object of his journey? Was he, after all, to return with the hateful word "fruitless" as the only record of his mission? He pulled himself together and strained his eyes to read the riddle of the mist; and as he was on the point of giving in he espied, below, a tiny sombre patch on the surface of the fog—a patch so small that ninety-nine out of a hundred would have passed it by.

He needed no prompting to tell him what that moon-cast shadow implied. It was not the first time he had known a cathedral tower to piece a bank of fog; but the grim smile which played across his face as he glanced at his bomb-sight, was short-lived. With paralysing suddenness a wall of flame and smoke leapt up in front of him. Where, an instant previously, there had been nothing but sapphire heaven, now there was nothing but crimson fire.

Aghast at the terror he beheld, Ivan sought to cope with a situation for which no previous experience had prepared him, and failed completely. Ivan was only 32. During the war of 1914-1918 he was still at school; consequently he had no first-hand knowledge of the power of the anti-aircraft gun.

There was no time to change his course without breaking formation. To do that was a thing which Ivan, even in the mental anguish in which he found himself, could not for the life of him contemplate. The iron rule of "flying discipline" had seared its way into his very soul—three years of fleet leadership under the inexorable Alexandrovitch had seen to that!



WRIGHT WHIRLWIND, J-4, 200 H.P. engine in VOUGHT UO-1 plane, used by Cuban Air Service, Columbia, Cuba. These land planes frequently are flown from Cuba to the Isle of Pines, crossing 40 miles of open water, which demonstrates the pilots faith in the power plant.

THE EXCELLENT SERVICE WRIGHT WHIRLWIND ENGINES ARE GIVING THE U.S. NAVY HAS MADE THEM KNOWN THROUGHOUT THE WORLD

WRIGHT Whirlwind J-4, 200 H.P. Air-Cooled Engines have been selected by the Navies or Air Services of five countries in North and South America in addition to the U. S. Navy.

One of the recent important purchases—if indeed not the most important in commercial aeronautics—is the sixteen Wright Whirlwinds bought by the Huff-Daland Company for Huff-Daland Dusters, Inc., of Macon, Georgia, who have taken large acreage contracts for orchard and boll-weevil dusting.

The reasons for the choice of Wright Whirlwinds by foreign governments and commercial flying enterprises are because of the unusual dependability, high performance, ease of inspection, adjustment and minor repairs and the low cost per flying hour. Wright Whirlwind Engines are available for immediate delivery and ready for service under severest conditions.

Send for Bulletin No. 8-A for general information and technical specifications and consult us for cooperation in working out the details of aeronautical projects.

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WRIGHT WHIRLWIND J-4 AIR-COOLED ENGINE

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

So he drove straight for the barrage-curtain, and hard on his heels went Piramidoff and the remainder of his comrades. None of them noticed that the fire at the point where they were to strike the shell-swept stretch of sky, weakened perceptibly as they approached it. Ivan, perhaps, was dimly conscious of seeing, in his mirror, Brusileff, his chief gunner, crouched at one of his after machine-guns; but he neither saw the tracers pouring from the muzzles of the guns, the phantom tail of phosphorescence they gave to his machine nor their target, any more than he heard, above the growl of the barrage ahead, the chattering bark as the machine-guns spat out their venom. His tottering senses could not take it all in. He only knew that hell, in every known form, had beset him and that his course was irrevocably set.

Led therefore rather than leading, unflinching because momentarily unconscious, he sat motionless while his machine shrieked straight into the death-zone. He was, for the nonce, heedless of direction and careless of his fate.

.

V.

O'Reilly stared fixedly at the curtain of flame and smoke rushing up to meet him.

"One-two-three-four! One-two-three-four!"

He pulled the mouthpiece of his transmitter towards him and spoke into it distinctly:

"Cease fire!"

Then he pushed it away again. The barrage-fire immediately dwindled and died out.

More distinctly than ever now O'Reilly could see the hostile formation in front of him. The silver gossamer which issued from it and girt him and the four other machines of his Flight in its web, gave O'Reilly the feeling that he was a fly about to be embraced in the clutches of a monstrous spider. Yet so erratic was the enemy's fire that it really seemed that he was not trying seriously to attain his pursuers.

The "tracers" were weaving their webs anywhere but on O'Reilly's diving flock. O'Reilly knew, however, that any one of those silvery wisps was capable of dealing a deadly blow. He could see each wisp opening and closing scissor-like, covering by itself more area of sky than that occupied by his whole formation, and he felt himself wince as one of them there and then appeared to read his thoughts, and deflected ominously. O'Reilly shut his eyes as it drew towards him.

But his luck held, and he found himself calmly sizing up the leading machine of the hostile formation through the lens of his telescopic sights; gone was the uncanny sensation of the hunter turned hunted, which for a moment had threatened to take hold of him. He had just time to squeeze his trigger-finger once and to note the tracers from his own six machine-guns "cone-ing" round their targets, when Ivan's formation swept into the rolling barrage-curtain and was blotted out. O'Reilly swore under his breath, pushed the nose of his machine still further down, and set his teeth. Spear-head of the inner aeroplane defence force, "B" Flight of No. 509 (Night) Home Defence Squadron, five in number, but one in every thought and action, hastened its aerolitic descent and streaked into the wall of pungent smoke, not more than five hundred yards behind its quarry, and less than that distance ahead of the Flight "next astern."

Almost before O'Reilly had time to realise its density he was through the curtain and in the moonlight once more. Just in front was the hostile formation. O'Reilly had his eye in line with his gun-sight, but his trigger finger now was idle. A look, almost of detachment, was on his face, just as though he was tired of the chase or fascinated by the spectacle of those massive craft before him, speeding down towards the distant carpet of white, moonlit fog. O'Reilly might have been carved in stone.

Suddenly he moved. His right hand went up to his forehead and quickly pulled down a pair of tinted goggles. Then, as quickly, he reached for his mouthpiece.

Ivan, Piramidoff and their comrades probably wondered what was implied when they observed a circle of star-shells which burst an instant later at their level. If so, they were not held in suspense. With no other warning, a cylinder of dazzling light, ten miles at least in radius, leapt up from the fog-enveloped earth, and stood encircling them, immobile—a light for no naked eye to look upon with impunity.

If any of the occupants of the Sixth Group saw anything, it was the symbol of requital for the ten-and-a-half tons of insidious death and destruction, which a second previously had parted from the machines of Ivan's formation, and were even now racing swiftly earthward.

From the light of the moon they passed into a jet-black darkness which stung, and paralysed the brain. Seized by panic of the unknown, they froze onto their controls, their eyes wide open, their jaws locked in the spasm of dispair. One by one the machines of the formation broke away from their stations, some to collide head-on in a sheet of yellow flame and a cloud of screaming fragments, others to spin madly towards the earth or soar equally madly towards the stars.

O'Reilly, steadying himself at the rubber eyepiece of his gun-sight, felt as he went down towards the diving shape that bore Ivan, rather like the gad-fly despatched by Jupiter to unseat Bellerophon.

Holding his machine to her headlong descent, O'Reilly overtook and closed with Mohilef in a twinkling. There was no hesitation in his action; the "pull-out" he effected came as naturally as the upward swoop of the exhibition high-diver, the "stall," as he hung for a brief second nose-up under the hostile machine, outshone the seagull for skill and precision, when that past-master in the art of aerobatics suspends his forward movement to "field" a dainty morsel thrown high to test his cunning.

O'Reilly's trigger-finger crooked itself and stiffened. He had a sudden "close-up" of a sliding expanse of glittering metal and could distinguish the rows of shining rivets which flashed horizontally across the object-glass of his telescope; then the control lever, pressing into his stomach, slapped over to one side and the picture was gone.

Three times O'Reilly spun round and down. Coming out of the spin some thousand feet lower, he started climbing again, and Ivan's machine, switchbacking like a falling leaf, passed within a few score feet of him, on fire. As O'Reilly stared after it, his eye fell on another of the enemy—rising; this one, recovered from the blinding effect of the light-belt, and bent on seeking sanctuary in flight. O'Reilly turned towards the approaching craft and almost immediately turned away again, for he caught sight of a machine climbing behind it, getting into position, as it overhauled the hostile bomber, to deliver the *coup de grâce* O'Reilly momentarily had hoped was for him to give.

Greed was not one of O'Reilly's vices. Moreover he had recognised in the tiny pursuer, a machine of his reserve "pool," and he knew instinctively that this was Soule back in time to be in at the "kill." So he contented himself with the rôle of spectator, watched Soule account for his selected opponent, and described a broad, upward spiral within the confines of the light-belt. Of the remainder of his flight he could now see nothing, but beyond the wall of light he detected the criss-crossing gossamer threads of the "tracer" bullets and the guiding beams of the "aeroplane" searchlights, where some of his people, or those of other units of the defence, were engaged with scattered members of the hostile group who had succeeded in breaking out of the death enclosure.

While he waited for Soule to rejoin him, O'Reilly examined the fog beneath him. Rendered partly transparent by the blaze of light, it nevertheless concealed the capital below it. But here and there through the blanket, he could perceive a red glow, stabbing and flickering as a fire flickers when it has taken a firm hold and starts to spread. O'Reilly shuddered involuntarily and attempted to count the spots whence the glows stuck up through the fog.

While doing so, he became aware of Soule taking up his station in front of him, and, on his port quarter, two other members of the Flight, returned from their expeditions. Looking to his starboard quarter, he was surprised to find bare sky; and, unloading his guns preparatory to ordering the light-belt to "close down," O'Reilly realised the price of safety.

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VI.

The Defender-in-Chief rose and went over to his Chief-of-Staff's table. A great weight was off his mind.

Of the raiding force, only one detachment had penetrated the outer defences. That Ivan's group had succeeded in reaching and dropping its bombs on London was unfortunate and the damage wrought would undoubtedly prove severe but the danger that had been averted was a consideration of far greater importance.

There remained now but to examine the profit-and-loss account for the night.

"Well, thank God that's over!"—He passed his hand wearily over his forehead and leant over the seated figure.—"Any reports in from Everett, yet?"

The Chief of Staff shook his head.

"No, none, Sir," he replied. "I expect he still has his hands full."

He pushed his chair back and directed his eyes towards the relief map beyond the edge of the daïs. The Defender-in-Chief followed his companion's glance. From that portion of the model which represented the capital, a dense cluster of small, red lights had suddenly sprung up. At first sight they appeared to form one blotch in the north-eastern quarter of the city, but in reality there were two, divided by a narrow unlighted space. Even as they watched, a couple of additional lights lit up to reduce the gap still further, near one end.

"Good Lord, if those two areas join"

The Chief of Staff moved restlessly in his chair and looked

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up at the other. The eyes of both men met, and there was no need of an answer to his remark. The Defender had already visualised the picture. London under a dense fog, and a quarter of the capital engulfed in flames, to say nothing of a scourge more formidable than fire, for all he knew to the contrary!

Suppose the gas-masks which had been issued proved ineffective!

He straightened his back and shot a glance at the loud speaker on his table.

"See if you can get hold of Everett."

He paused, and then added, as his Chief of Staff began busying himself with the "call" switch of the Salvage Section's circuit: "Do you know, I feel ten years older! An hour ago I was as blithe as a——"

The rest of his soliloquy was drowned by the discordant notes of a bell, and following on them, there floated into the chamber the voice of the Deputy Director of Salvage.

"Hullo, Hullo! Everett speaking, Sir! Everett speaking. Area, Cherry Tree Hill—Bedford Square—People's Palace—Wood Street Station—Cherry Tree Hill, in flames and under gas. Situation critical, but I think we have it in hand. I am mining all the way round, and if the wind does not get up"

The Defender-in-Chief had his lips to the "speaker" of his master-transmitter; their movement was so slight that his words could not easily be heard. The Chief of Staff thought he said something about the western and southern areas being denuded of their salvage equipment.

The sense of the Defender's interpolation, however, was made clear the next instant, as the Salvage Commander's voice again filtered across the control room.

"Yes, Sir, I am afraid we cannot avoid it. If we do not isolate this area within the next three hours, the whole of London"

The voice trailed off into silence. The Defender-in-Chief whipped round. His Chief Staff Officer was anxiously examining the communication switchboard, seeking the cause of the failure.

Suddenly he looked up, an uneasy expression in his eyes. "Priority from Yarmouth, Sir." As he spoke, he sprang to his feet. Then as a dull reverberation shook the chamber, telling them both that the fire-fighters above were already laying bare the fringes of the stricken area, a thin piping voice broke the silence that had fallen on the room.

"Yarmouth speaking," it said unemotionally. "Yarmouth. Are you there? Hostile force, estimated at three hundred units, passing inland over this town, heading south-west. All outer defences in action."

THE REID REACTION TIME APPARATUS.—II.

The Reid apparatus consists of a mock-up of a normal aeroplane fuselage fitted with a standard stick and rudder bar. The stick is coupled up to a semi-circular tube containing mercury and a series of contacts which are in turn coupled to a circuit containing a battery and a series of small electric lights arranged round the periphery of a semi-circular indicator dial. The central light on this indicator is white, those to port are green and those to starboard red. When the stick is accurately centred the white light alone shows. With the stick displaced one or more of the coloured lights on the corresponding side are alight.

The rudder bar operates another series of contacts controlling a horizontal line of lights on the indicator. Here again a central white light alone is alight when the control is accurately centred, and red or green lights show up if the rudder bar is out of centre. Thus movement of either control produces on the indicator the same sort of signal as it would produce on a Reid Control Indicator in a real machine.

The rest of the apparatus consists of a Morse telegraph printing instrument connected up to the electrical circuits controlling the coloured lights in such a way that it prints a continuous trace on a tape for so long as any coloured light is in circuit, but ceases to print when the central white lights alone are burning. In addition there are master switches by which either the lights controlled by the stick alone, or by the rudder bar alone, or both sets together, may be put into action.

How the Reid Gear Works.

The method of using the apparatus is very simple. The subject is placed in the cockpit and the lights controlled by the stick alone are switched on. He is then allowed to waggle the stick about to get an idea of the effect. The lights are then switched off and he is told to hold the stick hard over to the left, and to stand by for the appearance of the lights. When they show up he is to centralise the stick and get the white light alone burning as quickly as possible. He is allowed to do this two or three times to get the hang of things and then the telegraph printer is switched into circuit and the process of centralising from hard left is performed a dozen times of so. The process is then repeated for movements right to left.

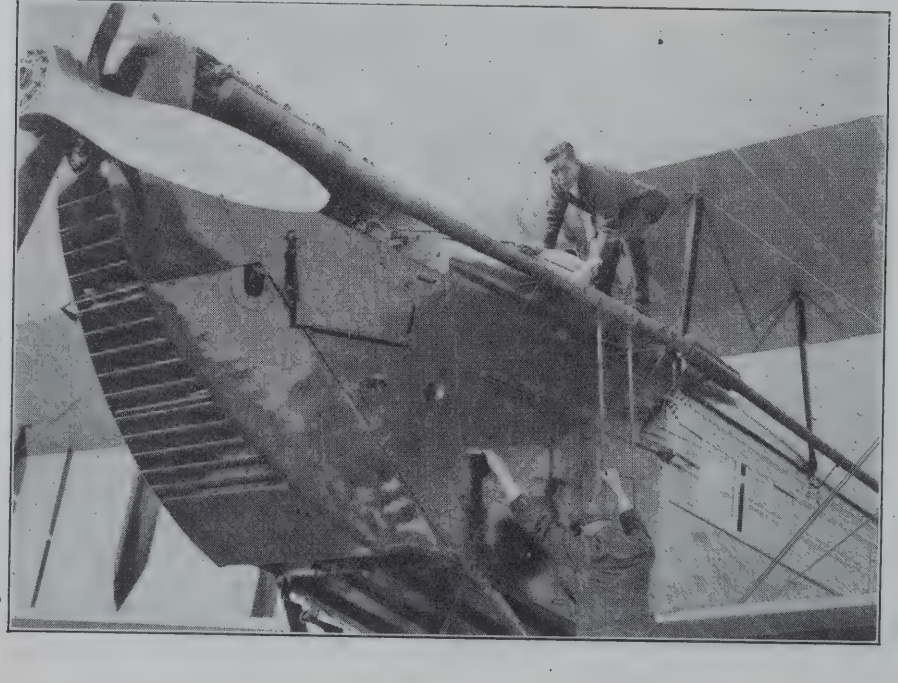
Each of these tests produces an inked trace on the tape of the Morse printer, and the length of this trace gives the time taken from switching on the lights to the final steady centralising of the control. If the operator moves the stick in the right direction, but either overshoots or stops short of central, the record goes on until he finally reaches the correct position. Thus the whole time for the accurate completion of the desired movement, and not that for the first response only, is recorded.

Then the stick lights are switched off, and the rudder-bar lights alone are brought into use, and a series of records of the time taken to centralise the rudder, first from left and then from right, is obtained. Finally, both sets of lights are turned on and the time is taken for a series of returns to central position from the state in which the rudder is hard right and the stick hard left. This is called the "spin" condition, but it is really a test of the ability to co-ordinate movements of both hands and feet at the same moment.

Incidentally, in the middle of the series of "spin" tests a particularly offensive electric horn concealed behind the subject is switched on while the effort to centralise is being made.

What are the Results Worth?

To what extent are the reaction times thus recorded really



PROPORTIONS.—A striking photograph of Mr. Hubert Broad climbing into the pilot's seat of the D.H.54. The housing of the Rolls-Royce Condor is here plainly seen. If we had in this country a real live air transport firm the De Havilland Aircraft Co. Ltd. would by now have had an order for at least a dozen similar machines, as there is no commercial machine in the world to-day as good as the D.H.54. As it is, however, the De Havilland firm are still waiting for an order from Imperial Airways Ltd.


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a measure of piloting capacity? The only really satisfactory answer to this question must be given as the result of extended experience with it, but such experience as is available suggests that the instrument is remarkably satisfactory.

The arrangement has been criticised on account of its lack of real resemblance to an aeroplane. The instrument as a whole does not itself move with control movements, consequently the signal given to the pilot is not the same as the one he would receive in flight. This of course is true, except insofar as it is precisely the same signal as would be received when flying in fog, or cloud, by instruments.

Secondly the controls are extremely light, unresisting, and sensitive. A movement of the stick which would be well within the limits of control backlash in many cases will turn on one or other of the many coloured lights, and so keep the time record going.

There is reason in these objections, and the only possible answer to them is that in fact people who are known to be competent pilots do better on the apparatus than those who are not, and that pupils who have proved to have no aptitude for flying because of their ham-fistedness give extremely bad records.

On the other hand it is said that if it is the case that experienced pilots show up well on the apparatus, then that fact may be attributed mainly to their familiarity with the movements which they are asked to undertake, and that a bad record by a man not familiar with the control of an aeroplane may be solely due to that unfamiliarity, and that, if he were given a course of flying, his record on the Reid apparatus should become excellent even though as a pilot he was very poor.

Here again there is some reason. A man might conceivably be too terrified in the air ever to use his "hands" to the best advantage, and yet give an excellent reaction time on the ground. As far as known no case of this sort has yet been discovered, but it should be remembered that the Reid apparatus only professes to test "hands." A man with first-class hands may be rendered incapable as a pilot by other mental or physical disabilities, and the Reid apparatus might fail to indicate these. The general evidence given by the records obtained from the apparatus, however, suggests that many disabilities are shown up.

The Effect of Familiarity.

The fact that familiarity with flying will reduce the reaction time as tested by this apparatus does not in practice lead to any difficulty of a serious nature. Examination of the records taken from visitors to Wembley shows that there is no difficulty whatever in classifying the records as "promising" and as "hopeless." The hopeless type has both a high-average reaction time and a very wide variation between individual tests.

The bad subject may, or may not, jump right off the chart when the Klaxon is turned on, but he nearly always grows worse—more erratic and slower—after it.

The good pilot has a low average and a relatively small variation in reaction time throughout each series of tests.

The promising subject who is not a pilot has usually an average reaction time somewhere between the pilot and the hopeless case. Unfamiliarity with the required movements may lead to his showing an initial reaction time nearly as long as that of the hopeless case, but that time will show signs of coming down as each test is repeated. He—and even the experienced pilot—may be considerably disturbed by the Klaxon, but his reaction time will rapidly return to the previous normal, or even noticeably improve during the succeeding tests.

From the results which are available it would seem that certain people whose reaction time is abnormally long cannot be educated out of that sluggishness and are definitely unsuitable for flying purposes. Others are definitely both quick and consistent and these—so far as "hands" go—are suitable material for training as pilots. The intermediate types cannot always be classified as the result of one test, but those whose "hands" are capable of education show the fact by steady improvement with continued practice on the apparatus and will probably do the same thing when they are actually sent into the air. Those who are initially poor and who fail to improve on the Reid apparatus are unlikely ever to become really good pilots.

The Imperturbable and the Nervous Individual.

One interesting fact concerning the tests so far made at Wembley is that the stolid and imperturbable type is usually slow and erratic, whereas the highly-strung nervous individual often gives a very satisfactory return. It is undoubtedly the case that few good pilots are stolid or imperturbable and that a surprising number of first-class pilots are highly-strung and nervous. This is not only evidence in favour of the value of the Reid apparatus, but tends to confirm the view already expressed that a good pilots does not fly by "instinct," but continuously uses his reason. He has, however, a very alert and active thinking mechanism which carries out routine reasoning with the minimum of effort and loss of time, and consequently he is able to deal with two or three different subjects while the stolid individual is busy with the first.

If such an individual devotes any reasonable proportion of his "spare time" thoughts to a consideration of the horrible things that may happen he is pretty certain to show signs of nervousness. But provided that the resulting apprehensions do not paralyse his normal mental activities nervousness of this type should be rather an asset than anything else to a pilot.

The Indications from Various Types.

As an indication of the sort of differences shown by different individuals on the Reid gear it may be said that the best curve yet obtained—given by a very well-known and skilful pilot—gave the following reaction times: Hands, left to right, 1.76 sec.; right to left, 1.84 sec. Feet, left to right .50 secs; right to left, .46 secs; and spin, 1.89 sec. The maximum time in this case does not exceed the mean by more than 50 per cent. An average good pilot gave: Hands, left to right, 1.86 sec.; right to left, 1.94 sec.; spin, 3 sec.; with something like the same sort of divergence from mean to maximum. The average pilot differs from the abnormally good one mainly in the extra time required for co-ordinating hands and feet.

A pupil who proved to have no idea of flying properly after some 17 hours' dual had a time for hands of 3.6 secs., feet about 1.0 sec., and spin 6 sec., with a variation of about 75 per cent. between mean and maximum. In very unpromising cases the variation between mean and maximum may exceed 100 per cent.

A trial of the writer on the apparatus indicated the possession of quite good hands. The average of hands alone (both ways) was just under two seconds, of feet almost exactly one second, and for the "spin" about 2.6 seconds, figures more or less suggestive of quite a good pilot. Actually the subject in this case has a certain amount of flying experience—about 50 hours in all, mostly dual control—spread over a period beginning in 1912 and terminating in 1917. The most sensitive machine ever flown by him was an 80 Le Rhône Avro (R.N.A.S. type, with fin) which flew itself very successfully if left alone, so that although those pilots who had taken him up had reported that he seemed to be quite a reasonably good pilot the Reid apparatus was the first to suggest that he might possess really good hands.

By courtsesy of the De Havilland Aircraft Company a check test was made in the air. The writer was taken up to 1,000 feet in a Moth by Mr. Broad, and allowed to try and fly it. The Moth is a noticeably sensitive machine and the day was bumpy. The result of one's attempt to fly the machine cannot by any means be represented as a finished performance.

At the same time Mr. Broad assures one that no signs of ham-fistedness were obvious, that so far as rudder and lateral control go, the machine was handled quite well, and that the worst defect in the performance was a persistence in holding the nose down, and consequently losing height. It may be said that not having handled controls in the air for eight years one felt distinctly frightened at the time, and that the seat in the Moth is really too low so that there was no view ahead when flying level. Under the circumstances, the attempt to fly too fast may perhaps be considered forgivable.

Naturally one test of such limited extent cannot be regarded as of very great value, but on the whole it does go towards confirming the correctness of the Reid prognostication.

IRRIGATION SURVEY IN SOUTH AFRICA.

The Johannesburg correspondent of *The Times*, in a communication dated Aug. 7, states:—

Union airmen with the Schwarz expedition, which is investigating the lake and river region of the Kalahari, are doing good work. The airmen have to carry their own supplies to the advanced base, which is 90 miles from Livingstone. They have already photographed the country from the junction of the Chobe with the Zambesi to about 50 miles of the South Angola border. They have also taken pictures of several dry watercourses. The photographs are handed to Dr. Du Toit, the leader of the party, who, with other members of the expedition, is making a ground survey.

The object of the Schwarz expedition is to determine the practicability of diverting the course of the Chobe river into a channel which it is thought to have once followed. Professor Schwarz considers that this deviation would irrigate and fertilise large tracts of the Kalahari.

Aerial survey has already been proved to be of considerable value in tracing natural features of the landscape which cannot be seen from the ground, such as cities and even individual buildings which are invisible at ground level.

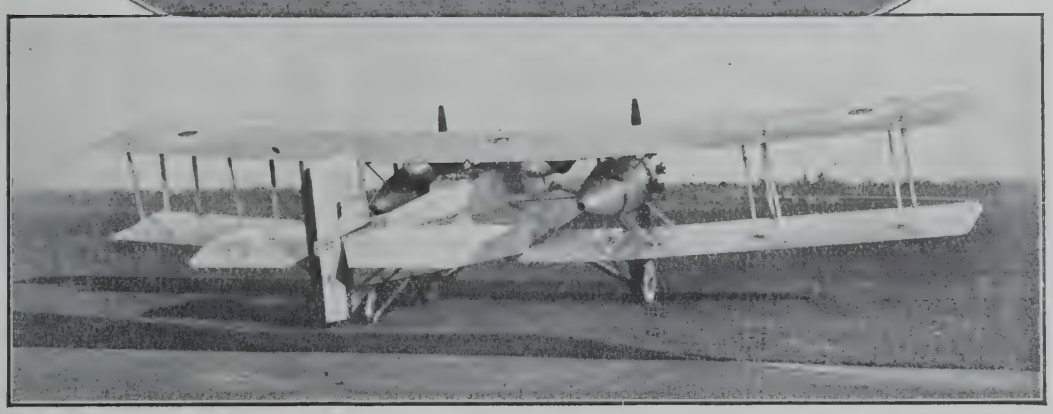


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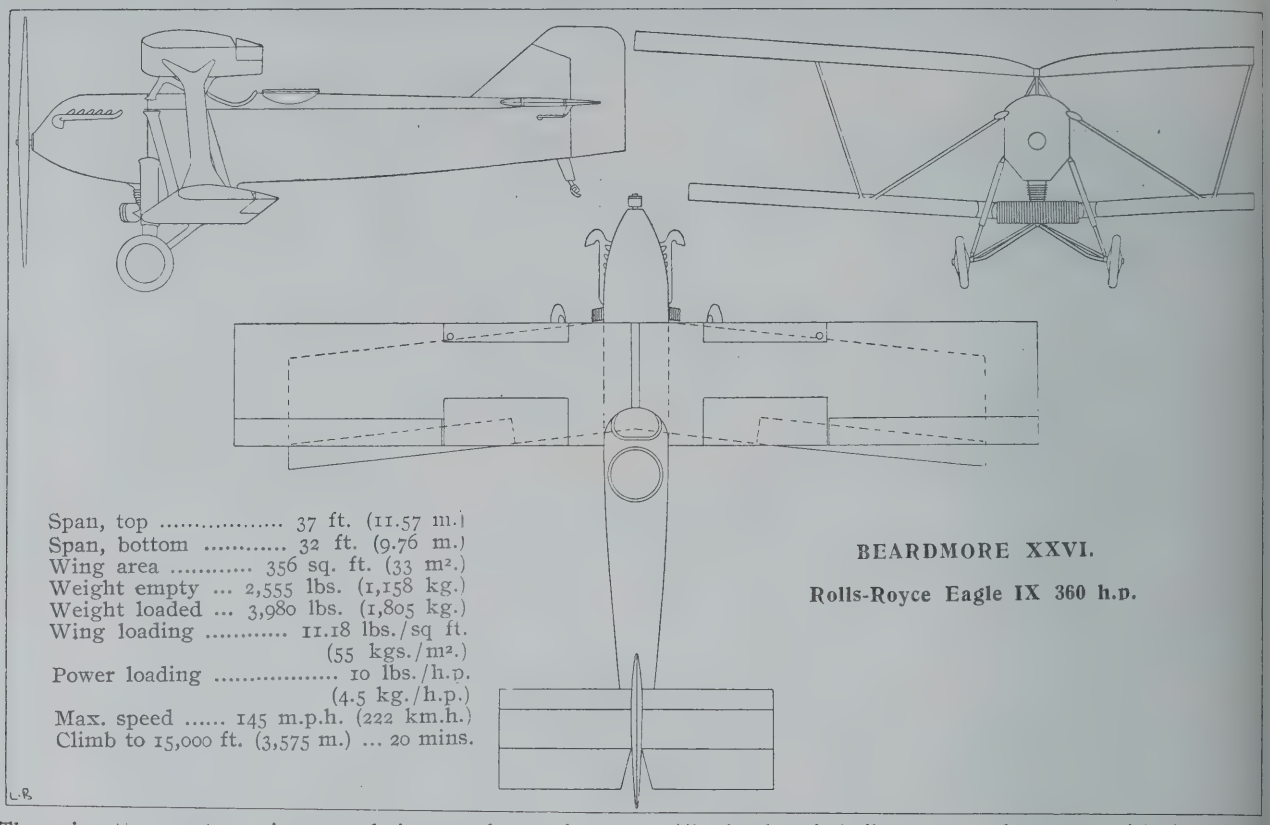
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BEARDMORE XXVI.

Rolls-Royce Eagle IX 360 h.p.

There is at present nearing completion at the works of Wm. Beardmore and Co., at Dalmuir, an exceedingly interesting military aircraft, which, thanks to the fact that it is being built for a foreign Power and not for the Air Ministry, may be described in some detail.

This machine, the Beardmore XXVI, is a high performance two-seater fighter. It is of the rigidly-braced thick-wing biplane type which has been preferred to the monoplane because of its greater rigidity, manœuvrability and lower structure weight. An excellent aerodynamic efficiency has been sought for by the use of a high gap-chord ratio and by the general cleanness of the design.

The wings are pin-jointed to the fuselage, and with the rigid bracing system of three struts per side assembly or detachment is very rapidly possible, as no trueing up of any kind is necessary.

The pilot and gunner are seated very close one to another, an arrangement permitting easy communication between the two. Two fixed guns of the Beardmore-Farquhar type, with Constantinesco interrupter gear, are controlled by the pilot, and another gun of the same type is mounted on a Scarff ring in the after cockpit. This gun has a clear field of fire over the hemisphere above the horizontal and can also be used at 10° from the vertical over the side of the body.

The fin and tail plane are braced only by struts below the tail plane, where there is little risk of damage by fire from the after gun.

The machine is mixed timber and metal construction. The wings are built on two spruce box spars with spruce and three-ply ribs and are covered with three-ply from the leading edge to the rear spar, thus giving great resistance to drag and torsional loads. The lower wing is supported by two struts from the top edge of the fuselage. Both are of steel tube, with a rivetted-on duralumin fairing and one only of them has an adjustment for length. Top and bottom wings are coupled by one "I" strut per side, which is built up from duralumin plate. Adjustment is provided on this strut for both rear spar attachments.

The fabric covering is laid on with the threads at 45° to the leading edge. This not only increases the value of the fabric as a drag-resisting member, but tends to limit tears due to bullet holes from spreading past the nearest rib.

The fuselage is built on spruce longerons with three-ply and spruce bulkheads, and is covered with glued and screwed on ply-wood. Two projecting fins, one above and one below the body, are built in one piece with the fuselage, to carry the top and bottom wings.

The undercarriage is entirely of metal, is provided with steel springs and a Ferodo-faced friction-damping gear, which is covered by patents now pending. A vertical travel of 9½ inches is provided by this gear, which has many advantages over both the rubber spring and the oleo-damped type of undercarriage.

The tail unit is of ample proportions and normal in design, except for the horizontal surfaces. Instead of the usual fixed tail plane and movable elevators, there is a tail plane made in two parts, of which the leading section is adjustable by levers from the pilot's seat. Following this is a fixed central section, to which the elevators are hinged. This device gives ample trimming power, and obviously calls for smaller controlling forces than are necessary with the more usual form of adjustable tail plane.

Complete dual control is fitted, so that the machine may be flown from either seat. All control connections are either direct acting rods or cables or else torsion tubes and no pulleys are used at all.

The radiator is of the Lamblin strut type and is carried on the fin below the fuselage, which supports the lower wing.

Petrol tanks, two in number, are fitted in the upper wing, and gravity alone is relied upon for the feed. The total capacity is 75 gallons (340 litres), or approximately 4 hours' supply at cruising speed.

The machine is constructed throughout to meet the British Air Ministry's requirements as to strength and quality of materials. All timber parts are adequately varnished. The fuselage is covered with glued-on fabric, given two coats of paint and two coats of pigmented oil varnish. Steel fittings are stove-enamelled, except on finished surfaces, which are tonetised—a process giving excellent protection against corrosion—and all duralumin is protected by a special varnish.

The outline drawing here reproduced indicates the general arrangement of the machine adequately.

The design of this machine shows strong signs of the originality which marks all the products of the firm's designer, Mr. Shackleton.

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Trips per Day.—Monday, 21; Tuesday, 27; Wednesday, 29; Thursday, 27; Friday, 30; Saturday, 26; Sunday, 16.

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London—Paris—Zurich; London—Ostende—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 65, passengers 420, freight 17 tons.

AIR UNION:
Paris—London: Machines 74, passengers 430, freight 10 tons.

K.L.M.:
Amsterdam—Rotterdam—London: Machines 25, passengers 126, freight 2 tons.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 8, passengers 29.

SPECIAL MACHINES:

DE HAVILLAND HIRE:
Machines 4, passengers 6.

Total number of trips by British machines: 69, carrying 426 passengers. Foreign machines: 107, carrying 585 passengers.

Comparative Figures:

For week ending Aug. 16:
Machines, 176; Passengers, 1,011; Crews, 248; Total personnel, 1,259.

Corresponding week, 1924:
Machines, 176; Passengers, 904; Crews, 223; Total personnel, 1,127.

Corresponding week, 1923:
Machines, 144; Passengers, 724; Crews, 231; Total personnel, 955.

Corresponding week, 1922:
Machines, 176; Passengers, 642; Crews, 303; Total personnel, 945.

Corresponding week, 1921:
Machines, 114; Passengers, 437; Crews, 140; Total personnel, 577.

Corresponding week, 1920:
Machines, 123; Passengers, 262; Crews, 154; Total personnel, 416.

Croydon Notes.

General amazement is felt at Croydon that Imperial Airways Ltd. has been given the contract to operate the Kantara-Karachi air service. However, it is agreed that most of the present directorate will have retired with old age pensions long before any new machines are forthcoming for the route, so that this will probably be one of those sins which are visited on the third or fourth generation.

One is told from a wholly unreliable source how the 12 Imperial Airways machines which, in an answer to a question asked in Parliament, and recorded in last week's THE AEROPLANE, were said to have been counted. In a spectacular play produced in London some time ago, there was a large turntable, on which a few people and things were placed. Only a quadrant of this turntable was visible from the auditorium, so that when the turntable was revolved, it seemed as though a large crowd of people and things was passing across the stage in a long procession. It is alleged that Imperial Airways Ltd. acquired this turntable cheaply, and on this both of the Fleet were placed and a procession of machines appeared coming out of the shed. Unfortunately, one is told, this turntable was, for economy, driven by one of Imperial Airways' own engines, instead of the plant for which it was designed. After the sixth circuit the engine broke down, so Imperial Airways only had 12 machines.

Unpunctuality is becoming dreadful. On Saturday, at 12.30 hrs., some passengers who had arrived at the aerodrome at about 08.00 hrs. to go to Amsterdam, were still waiting to get away. Trouble with ailerons was holding up the moiety of the Fleet which was due to go to Amsterdam that morning.

On the same morning, a large lorry, containing a number of bell tents, stopped outside the gates of the aerodrome. It was suggested that this was sent by an enterprising contractor who intended to put up a Summer Camp of the "Home from Home" type for passengers who had booked their seats and hoped to travel eventually by Imperial Airways Ltd.

But let us turn to a more pleasant subject. Mr. Hinchliffe was recently detailed to take an old lady and old gentleman for a joy-ride out over the Channel to see the French coast. Over the Channel he went to a height of 7,000 ft., and on the way back, when over England again, he descended to 2,000 ft. He saw the old lady putting her hand over her ear, and thinking that she felt the usual deadening effects on the ear-drums of a quick descent from a height, wrote her a note which he passed into the cabin, telling her that if she swallowed hard two or three times it would cure the deafness.

After a short pause he received a note back, as follows: "Dear Pilot, thank you so much for your kind suggestion, but I am afraid it will not help me much, as I have been stone deaf now for twenty-five years."

During the week-end Mr. Hinchliffe brought a D.H.34 back from Paris. The day was hot, but not abnormally so. On deplaning, one of the passengers seemed quite overcome by the heat. Mr. Hinchliffe, who feared that he was ill, asked what was the matter. The passenger stated that when he was on the way from the hotel to the aerodrome he was told that he might only carry 30 lbs. of luggage free. So when he got to the aerodrome he went into a changing room and put on an extra pair of trousers, three waistcoats, and a Fair Isle Jumper, and an overcoat. "And it was worth it," he said, "for my luggage when weighed only registered 28 lbs." He then volunteered the statement that he was a native of Aberdeen.

As he pulled a bunch of handkerchiefs out of his pocket to mop his fevered brow, a toothbrush and a shaving-brush came out too!—G. D.

A Civil Aviation Record.

Mr. R. H. MacIntosh, the well-known civil pilot, has this week completed six years commercial flying, during which period he has spent 2,500 hrs. in the air. Prior to this he had done a large amount of war flying.

Except for a short spell in the East and a few weeks with Northern Air Lines, Ltd., he has been flying continuously on the Cross-Channel Air Lines. He has been remarkably free from accidents, and has made many notable bad-weather flights.

Everyone will offer him congratulations and hope that he may have many more years of successful flying.

Mr. L. L. Carter.

The following letter has been received from Mr. H. P. Folland. His good news will give much satisfaction.

"I thought that you would be interested to hear that Larry Carter is progressing satisfactorily. I feel that he has a large number of friends who would like to know his pro-



A PLEASING PROSPECT.—A snap of the new Trust House Hotel at Croydon Aerodrome.

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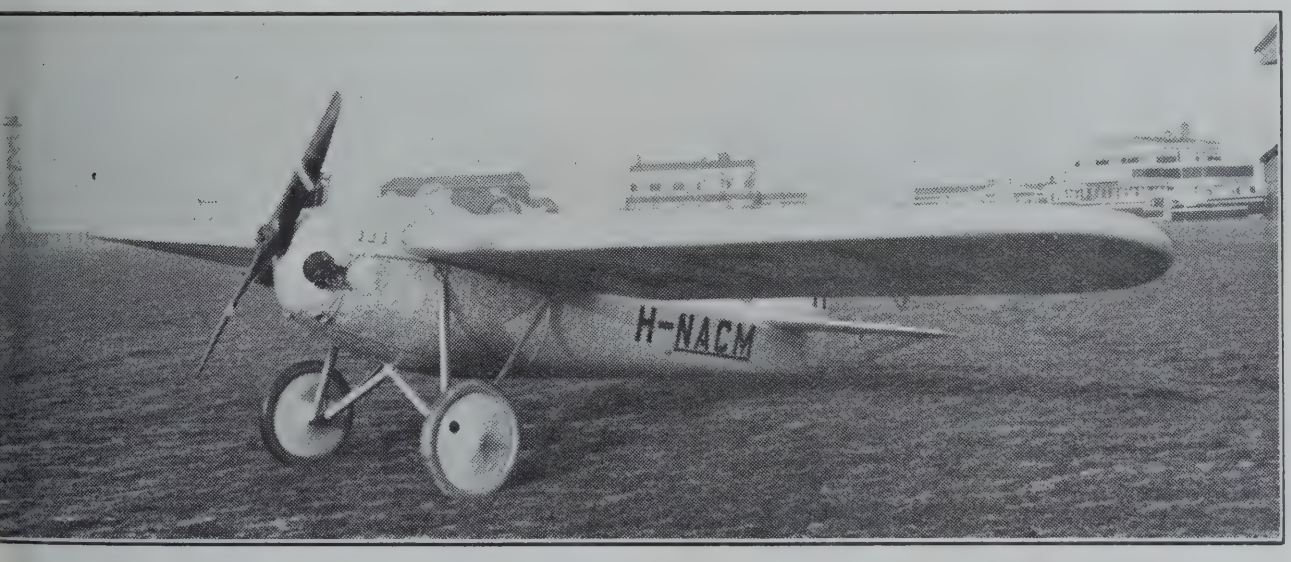
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gress and that probably a little paragraph from you would be greatly appreciated.

"I had the pleasure of spending a few hours with him last week-end at Cranwell, and he is going on wonderfully well. He is also able to converse quite normally and also can receive correspondence.

"He is looking quite fit and it is only now a matter of time before his head injuries and his leg injuries are well. This process, of course, may take at least six months or more. He is now able to take solid food, and he also smokes. Letters should be addressed to L. Carter, Esq., c/o R.A.F. Hospital, Cranwell, Lincs.

"You will realise that I have been unable to give you anything definite before as I have not actually written or seen him since the day of his accident, as we thought that any subject relating to aeroplanes or work would probably upset him."

An Achievement.

Captain Arrachard and M. Carol, of the French Army Air Service, who left Le Bourgêt Aerodrome at 4.45 on Aug. 10 in an attempt to make a tour of the principal capitals of Europe in three days, arrived back at Le Bourgêt at 9 a.m. on Aug 12, having accomplished their object.

The machine was a Potez reconnaissance machine, with a 450 h.p. (French rating) Lorraine-Deitrich engine, and the 4,600 miles of flight was carried out without a hitch. They passed over Turin, and after a two-hours' halt at Belgrade, reached Constantinople on the evening of the first day.

The next morning they left for Bucharest, arriving there at 7 a.m., and leaving again at 10. They landed at Moscow after 8¾ hours' flying.

They left there again on the following morning. They were bothered with rainstorms during the next stage of the journey, which was *via* Warsaw, to Copenhagen. The last stage was flown in excellent time. Every stop was made slightly ahead of the time-table throughout the whole journey.

Captain Arrachard won the Michelin Cup last year. M. Carol, the engineer, has been for two years with the Lorraine-Dietrich firm.

Tell Me More!

The following appeared in all seriousness in *The Daily Chronicle* on Aug. 18:—

THE FLYING INN.

HOTEL TO TRAVEL AT 100 MILES AN HOUR.

By "The Daily Chronicle" Aeronautical Correspondent.

The flying inn of fiction is to be realised in fact.

At the request of corporations which send surveyors, engineers, and managers on tours lasting weeks through remote, sparsely-populated territories, air constructors are busy with plans for huge craft, which are to carry not only parties with their luggage at 100 miles an hour, but which, when they alight at night, at any spot miles from civilisation, are to provide the complete sleeping and catering service of a first-class modern hotel.

In addition to an office with typewriters in which flying magnates can dictate letters while travelling at two miles a minute several miles aloft, these hotels are to provide dining-rooms, lounges, and a series of small, separate bedrooms.

AERIAL VALET.

A cook will prepare meals in an electric kitchen, and an aerial valet will be carried to wait upon millionaires and others who may be examining vast new properties in distant regions.

After a long day's surveying, somewhere far from civilisation, the pilot will guide his flying inn down, as twilight falls, into a lonely clearing.

Steps will be lowered from the doorway of the air hotel, and it will become, for the hours of darkness, like any normal residence.

PERSONAL NOTICES.

DEATH.

FITZGERALD.—On Aug. 12, in Iraq, as the result of a flying accident, John Jellett Fitzgerald, Plt. Off., No. 84 (Bombing) Sqdn., R.A.F.

Mr. Fitzgerald entered the R.A.F. with a short service commission on Jan. 3, 1924, and was posted to No. 4 F.T.S., Abu-Sueir, for a course of instruction. On Feb. 5 of this year he was posted to No. 84 Sqdn. at Shaibah.

According to a Reuter message the machine to which the accident occurred was carrying the mails from Basra to Baghdad and crashed in a sandstorm.

MARRIAGES.

DAVIES—DORMAN.—On Aug. 5, at Keady Parish Church, by the Venerable the Archdeacon of Armagh, Dr. Sidney Richard Eccles (late Capt., R.A.F.), B.A. Cantab., D.P.H. Lond., elder son of Sidney Davies, M.D. Oxon., and Mrs. Davies, Cove Hithe, Worthing, to Dorothy Charlotte Hobart, B.A., M.B., D.P.H., second daughter of H. Hobart Dorman, M.D., and Mrs. Dorman, Willowbank, Keady, County Armagh.

POOL—HARKER.—On Aug. 8, at St. Mark's Church, Gillingham, Bernard G. Pool, R.A.F., to Ines Harker, elder daughter of Mr. and Mrs. Edward Harker, British Consulate, Valencia, Spain.

WOOLLVEN—JEFFERY.—On Aug. 6, at Holy Trinity, Paddington, Flt. Lt. Charles Henry Chapman Woollven, R.A.F., son of Mr. and Mrs. William Charles Woollven, of Jersey and Plymouth, to Ariel Gwynnedd Alice Jeffery, daughter of the late Mrs. A. Jeffery, 68, Pattison Road, Childs Hill, N.W.2.



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THE AEROPLANE

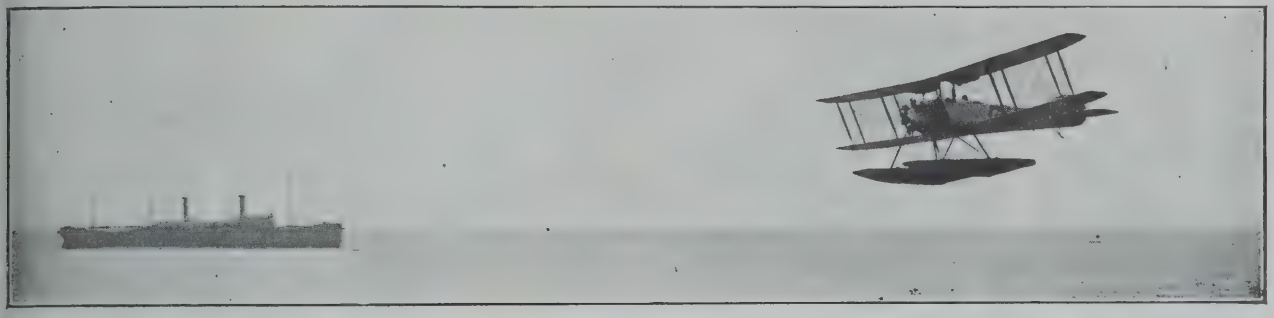
INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXIX. No. 9. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"HAVE TO THE PORT OF ATHENS SENT THEIR SHIPS." "THE LORDS

(Troilus and Cressida.)



LINKS WITH THE PAST:—An Avro 504N (Lynx) being tested off Hamble for the Greek Navy. The 504N is the present development of the 504K which is of 1913 design.

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AUGUST 26, 1925.

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Telephone: Holborn 426.
Subscription Rates, post free: Home, 3 months, 8s.; 6 months, 16s.; 12 months, 32s.
Foreign, 3 months, 8s. 9d.; 6 months, 17s. 6d.; 12 months, 35s. Canada, 1 Year, $8.
U.S.A., 1 Year, $8 50c.

ON "HORAE FUGACES."—II.

["A Flying Visit to the Middle East," by the Right Honourable Sir Samuel Hoare, Bart., C.M.G., M.P., Secretary of State for Air. 88 pages, 8 plates and a map. 3s. 6d. net. Published by the Cambridge University Press.]

This book is essentially provocative as may have been gathered by those who have read the first instalment of this review. The author is constantly touching in the briefest way on subjects which make one long to dig out vast tomes from the British Museum.

For instance, he describes a flying visit in a Bristol Fighter to Hatra, "the vast and almost unknown ruin of a Parthian city that lies far away in the inaccessible desert." He recalls the fact that the Parthians inflicted upon Crassus one of the most crushing defeats ever sustained by the Roman Empire. He reminds us that the great arch at Ctesiphon was their work. And he tells us that the Emperor Septimus Severus failed to take Hatra by siege.

Most of us only know the Parthians as essentially a nation of horsemen who were reputed to win their victories by running away and shooting their pursuers with bow and arrow from the saddle as they fled. Personally one had always regarded them more as Nomadic desert fighters than as city dwellers and engineers.

The Hand of The Mongol.

There is interest in noting the following phrase: "As I flew back, in a Bristol Fighter, from Hatra, the Parthian city, to Nineveh, the Assyrian capital, over country which is totally uninhabited, I could not have had a more conspicuous illustration of the destruction wrought by the Mongols in the thirteenth and fourteenth centuries and by the dead hand of the Turks since the days of Hulagu and Tamerlane."

Those foolish people in this country who are disposed to regard the present Soviet Government merely as a syndicate of commercially-minded Jews, and who are disposed to treat Russians in general, both personally and politically, as if they were white men, will do well to remember that the present leaders of Russia are Khazar Tartars who are only Jews by religion and that they are racially of the same breed as those who made the country which had grown to affluence under the Assyrians and Persians the howling desert which Sir Samuel Hoare describes.

The Kurd Country.

Following the visit to Mosul the Whitehall tourists flew up to Rowanduz and Kirkuk, the scene of those successful operations by Sir John Salmond two years ago, which were so graphically and yet succinctly described in Sir John's own despatches.

In this one finds another of those informative asides which make the book so fascinating. Sir Samuel says that they flew over "the sugar-loaf town of Erbil, the Arbela of Alexander the Great's victory and earlier the high place of the worship of Astarte." The goddess in question was the Assyrian Venus and her name is derived from the Gaelic-Irish word "Asthore," beloved by writers of pseudo-Irish sentimental ballads.

Another of Captain Wallace's pictures shows a few of the men of a regiment of Kurdish irregular cavalry commanded by Colonel Lawrence, V.C., "as officer as well known in the British Cavalry as in the show-ring of Olympia." Their uniform is described by Sir Samuel as being "half Cossack and half Indian." The combination is distinctly attractive. With that curious English talent for doing the obviously



BUENOS AIRES FROM THE AIR.—A photograph by Major S. G. Kingsley of the capital city of Argentina. Palermo Park is on the left, and the magnificent Avenida Alvear runs through the right centre of the picture. The Prince of Wales is at present on a visit to Buenos Aires and many people will wish that they also were there.

sensible thing and saying nothing about it we have evidently gone the right way to work to ensure peace in the Kirkuk area.

A new light is shed on an incident of Bible history by a very interesting passage concerning the most ancient oil well in the World, which is near the reputed fiery furnace of the Book of Daniel, which refused to burn Shadrach, Meshach and Abednego. Sir Samuel tells us that "Over a circle of 40 or 50 yards play innumerable flickering flames, which, try as you will, you cannot extinguish."

The probability is that the three Israelites discovered this circle of flame, and used it to impress the local Assyrian and Persian populace by walking about inside the circle. The incident occurred after Cyrus of Persia, assisted by our old friend Xenophon and his 10,000 Greek mercenaries, had overthrown the Assyrian Empire and sacked Nineveh.

It is quite possible that from this circle of flame arose the idea on which was based the legends of Brunhilde, which Wagner uses in the last act of the Valkyrie and in Siegfried.

The story of how Elijah defeated the prophets of Baal in the matter of the burnt sacrifice probably depends also on Israelitish cleverness in discovering and using the combustibility of oil.

At the end of this section of the book is a twelve-line passage about Colonel Lawrence and his pack of Saluki hounds which is a perfect pen-picture and suggests material for which a Kipling might write a companion story to the inimitable "Little Foxes."

From Kirkuk the party went to Sulaimaniya, quite near enough to the haunts of our old enemy the Sheikh Mahmud to be unpleasant. Moreover, as Sir Samuel remarks, "the perpetuity of blood-feuds" does not "help to foster peaceful relations amongst the inhabitants of the district."

Unconquered Subjects.

Yet another illuminating aside occurs when Sir Samuel says :—"The principal chieftains we saw at our durbar, for the most part splendid-looking Kurds, laughing and joking, ostentatiously talking Persian rather than Turkish, bearing themselves as descendants of the great race of the Medes."

There is much interest in learning that the Kurdish aristocracy regard Turkish as a language which is to be avoided. It was inflicted on them by their Turkoman conquerors whom people insist on calling Mongoloid, though personally one prefers the wider racial term Japhetic. But Persian is in fact equally a language which was inflicted on them by a conquering nation.

There is little doubt that the original language of the Kurds was Hebrew, as they are almost certainly the remains of the Israelites who were carried into captivity, and at the time of the downfall of the Assyrian Empire, in about 650 B.C., practically covered the whole North of the country from Aleppo right into the Kurdish Hills south of the Caspian. The Kurds apparently remained in Asia Minor while the rest of their people pushed up through the Caucasus and became what used to be called the Caucasian, but is now more commonly called the Nordic, Race.

Arabia and Persia.

From Kirkuk the tourists returned to Baghdad, where they had more conferences and more inspection of Air and Army units at Hinaidi. From Hinaidi they flew to Basra descending on the way on a small Air Force detachment at Samawa where they were entertained in a railway carriage and really saw the Air Force under Service conditions.

From Basra they paid a visit to Abadan, the Anglo-Persian Company's oil port. Again Sir Samuel treats us to one of his delightful snapshots in words.

He says :—"A day in Persia I had imagined to be a mixture of attar of roses and Omar Khayyam. The Persia that I saw was an expanse of unbroken desert, scorched by a fiery sun, with an overpowering smell of oil and a newly-built port that would have done credit to the Clyde."

On the way back to Baghdad on Apr. 11, the party stopped first at Shaiba, the headquarters of the Air Force squadron the most popular part of which according to Sir Samuel appears to be the swimming bath.

Their second stop was at Ur of the Chaldees, whence came our Father Abraham. And here again Sir Samuel found the inevitable English hunt, this time run by a former Sergeant-Major of the 7th Hussars with his sergeants as whips and Arab police as the field.

The energy and enterprise of our German relatives made itself evident on Sir Samuel's return to Baghdad when Sir Percy Loraine, the British Representative in Teheran, was flown by a Junkers monoplane to the Persian Frontier whence he was brought by a British machine to Baghdad. After a day's discussion there with Sir Samuel and Mr. Amery, he returned to the Persian capital by the same German transport.

The Return to Zion.

The Secretaries of State left Baghdad on Apr. 14 and Sir Samuel in his parting remarks pays particular tribute not only to Sir Henry Dobbs but to Air Vice-Marshal Sir John Higgins, who has so worthily carried on the work of Sir John Salmond.

The journey back to Ziza against a head wind took nine hours, which suggests that when the proposed commercial air line takes over this section of the England-to-India air route it may well decide to use something rather faster for mail work than long-range bombers.

The remarkable versatility of Sir Samuel Hoare is shown in his brief chapter on Trans-Jordania, Palestine and Egypt. He touches on the colossal Roman ruins at Amman and then proceeds to detail the bag recorded in the game book kept by the R.A.F. officers at Amman. Remarking that he is not writing a Baedeker of the Middle East, he mercifully omits to describe Jerusalem and other cities of Palestine.

Despite his Quaker ancestry Sir Samuel evidently has a fine feeling for the traditions of the great churches and his remarks on the Holy Week observances in Jerusalem are well worth reading. His story of the gallantry of the aged Arab adherent of the Anglican Cathedral in Jerusalem is one of the finest stories in the book.

Switching suddenly from the religious aspect of Jerusalem to the military force which controls the mongrel population of Palestine, Sir Samuel gives a very interesting sketch of the Palestine gendarmerie, which, as is the case with the ground forces in Iraq, is under the control of an Air Officer, Air Commodore Gerrard, who will be remembered as the first officer of the Royal Marines to become an aeroplane pilot.

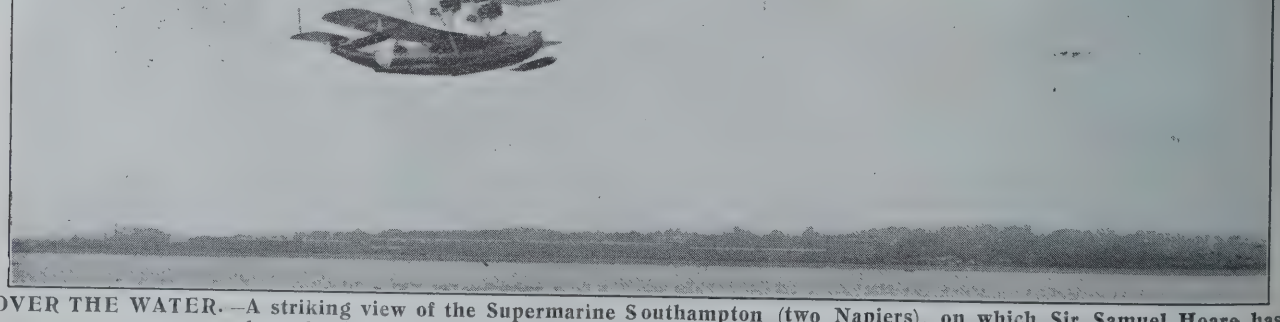
Sir Samuel also records that he had a discussion with Air Vice-Marshal Sir Oliver Swann, at present commanding the Air Force in Egypt. Sir Oliver was in fact the first British aviator to take a hydro-aeroplane off British sea water, which he did with an Avro at Barrow-in-Furness—and promptly fell in again after leaving the surface.

There is a curious fitness in finding that throughout this little book practically every Air Force officer mentioned by Sir Samuel is entitled, if he should ever so desire, to call himself a pioneer of British Aviation. The fact encourages one in the belief that long and faithful service does in due course bring its reward.

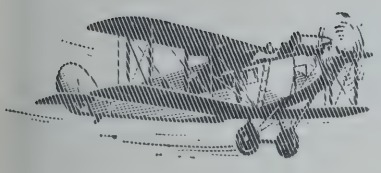
From Egypt Sir Samuel Hoare and Mr. Amery went to Italy to pay a visit to Signor Mussolini. Sir Samuel's sense of humour compels him to say in connection with a projected flight in an Italian airship :—"My first voyage I had made during the War when I was asked to accompany upon his first flight a Lord Mayor of London who was visiting the Italian front and who, as I well remember, consumed more Mothersill in his drive to the aerodrome than I should have imagined the human frame capable of absorbing."

Super-Optimism.

Thereafter Sir Samuel, although he really knows better, evidently feels that his position as Air Minister demands that



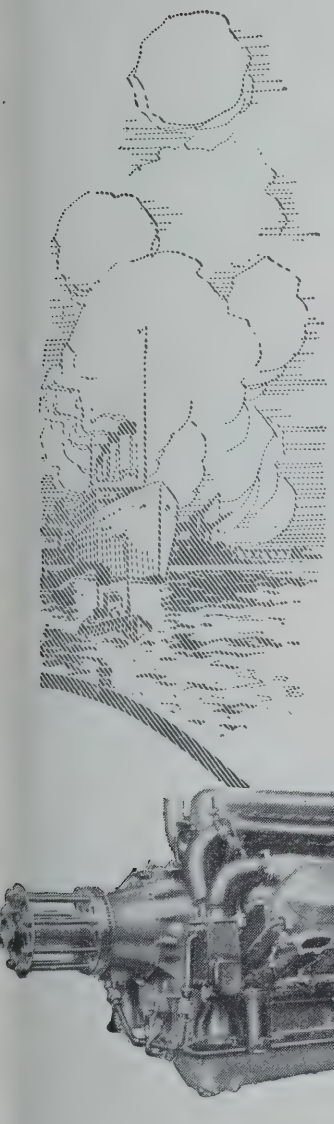
OVER THE WATER.—A striking view of the Supermarine Southampton (two Napiers), on which Sir Samuel Hoare has been lately aviating. The boat is here seen coming up Southampton Water.



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DAILY TELEGRAPH, 5/12/24



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he should bear witness to the faith which is in him. Therefore he says " The time is past when a long-distance flight can be regarded as a dangerous experience involving both risk and courage."

One agrees with him when he says " That British engines, British machines and British pilots are particularly reliable is a fact so well known as to need neither discussion nor testimonial." But one does feel that both Sir Samuel and Mr. Amery deserve to be congratulated on their courage in taking that journey by air.

Both of them are, as statesmen and politicians go, young men with splendid careers still in front of them. They are not like a certain Peer whom Mr. Swift McNeill (one believes it was he) described as " A man with a magnificent future behind him." Ever since they began their trip one has been of the opinion that in the national interest they had no right to expose themselves to such risk.

It so happens that they have survived the journey, by good fortune and thanks to the skill of the Royal Air Force. And as a result they are undoubtedly far more valuable as Ministers of the King than ever they could have been if they had made the same journey on the ground. But whether their added value is worth the risk they ran is difficult to say.

At any rate they have the advantage that when they start discussing air affairs with the rest of the Cabinet Mr. Churchill is the only other Minister whose air experience entitles him to argue with them. And as Mr. Churchill is at least as much a " fervent of aviation," to use the French phrase, as they are, one feels that questions affecting the Royal Air Force and all that pertains thereto will find such support at Cabinet Meetings as will give it a distinct advantage over the older Services.

Hat-Lifting.

Sir Samuel makes handsome acknowledgment to those who were responsible for the success of his tour. He takes off his hat in print to the Officers who organised the tour for, as he says " it needs no small power of organisation to carry a travelling troupe of Ministers and secretaries 3,500 miles about the desert." Also he takes off his hat to the pilots and mechanics who made such a success of their jobs. In fact in the matter of headgear Sir Samuel seems to be almost as reckless as " The Daily Mail's " own Lord Rothermere used to be in relation to France.

Mr. C. Ll. Bullock, Sir Samuel's private secretary, who was also private secretary to his predecessor, is duly complimented on his Napoleonic staff work, and Sir Samuel does not forget to compliment the workpeople of Vickers, Napier, Rolls-Royce, De Havilland and Bristol for the excellent work which was put into the machines on which the party travelled.

Figures.

As a kind of appendix Sir Samuel adds a few figures about the saving effected in the control of Iraq by the Air Command. He points out that in 1920 the military forces in control of Iraq cost £38,500,000 and that by substituting the Air Command 64 Army units were reduced in 1922 to 12 with the result that the expenditure came down to £7,500,000.

When he and Mr. Amery were in Iraq the expenditure had been reduced to less than £4,000,000 and eight squadrons of the R.A.F. with three of their own Armoured Car Companies were keeping the country in order with the help of one British Battalion, three Indian Battalions and one company of Sappers and Miners.

Presumably the figures quoted are for money which the British Taxpayer has to find and much of the work on the ground which used to be done by British and Indian battalions is now being done by the Iraq Levies which are paid out of the internal revenue of the Kingdom of Iraq. Still that does not matter to us so long as John Citizen is relieved of something of his burden.

Oil Again.

At the time of writing the League of Nations Report on the Mosul question has just been issued and the British Empire is faced with the alternative of taking on the control of Iraq as a mandated territory for the next twenty-five years or getting out forthwith. There is one believes in England quite a strong body of ignorant popular opinion which believes that we should get out of Iraq. And one believes that there are also people with considerable political influence and financial interests who are hostile to the Anglo-Persian Company and would like us to get out of Iraq for fear lest the development of the Mosul oilfields and the laying of the pipeline across the desert to Jaffa should upset their own financial schemes and make the Anglo-Persian Company the most important of all the oil trusts.

In those articles written some two years ago one pointed out that in the next war, when the Japanese have possessed themselves of all the oilfields in the Dutch East Indies and the Russians have all the European oil and the Americans want all their own oil for their own purposes, the British Navy and the British Army and the British Air Force will have to depend on Iraqi and Persian oil for their motive power. Therefore one cannot believe that popular clamour or financial interests will ever persuade the Cabinet to give up Iraq and leave the oil supplies on which the future safety of this Empire depends in the hands of the Turks.

Now that they are governed by square-heads of their own race and not by the old Ottoman aristocracy who were Semitic Arabs, the Turks are bound to be hostile to us in the next war. This is apart from the fact that the square-head Turk is incapable of developing any form of enterprise and is only efficient as a destroyer.

Finally Sir Samuel touches briefly on the desert air mail which after all is only a form of exercise for the R.A.F. It must not be considered seriously as a mail service, although even at its worst it is quicker than the six-weeks' journey round to the Persian Gulf.

One hopes that this somewhat lengthy review of quite a small book will give some indication of the value which one puts personally on the book. All those who are thinking seriously about the next war and about the key position which Iraq holds in relation to that war, should read Sir Samuel Hoare's book and after having enjoyed it for itself would regard it rather as a guide to further reading on the subjects on which he touches so briefly and so pleasingly.—C. G. G.

ON HIGH SPEED FIGHTERS.

A paragraph in *The Morning Post* states that " Efforts are now being made by experts at Vickers to construct a two-seater fighter aeroplane, the speed of which it is hoped will be more than 200 miles an hour." Further it says that the Air Ministry has placed this order with Vickers Ltd. and that the first machine will be ready in a few months' time.

The statement is also made that the machine will be fitted with a Napier Lion engine and there is a further remark that " Previously the fastest two-seater has only been capable of about 180 miles an hour."

As the foregoing statements are published as fact and not as rumour presumably *The Morning Post's* correspondent knows something. That paper is, as one has so often said, very reliable as a newspaper. Therefore one accepts the statement without reserve and one congratulates the Air Ministry on having at last awakened to the need for high speed aeroplanes.

So far as one has been able to gather no foreign nation has a two-seater which even approximates to 180 miles an hour. But there does certainly exist in this country a machine which is credited with such a speed.

Hitherto its existence has been " one of those secrets known to everybody but ourselves." Every foreign attaché in this country must by now know pretty well all about the machine and probably most of them have managed to get photographs of it somehow or another. But neither this paper nor any other British paper is allowed to mention its name, under pain of possible prosecution under whatever corresponds in these days to the Defence of the Realm Act, commonly known during the War 1914-18 as Dora.

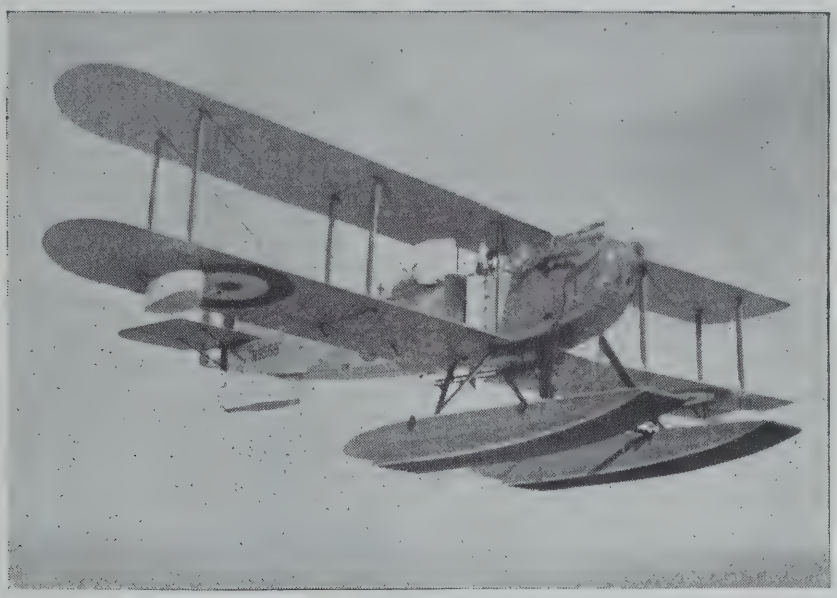
The joke of the situation really is that the said machine was built by a constructor purely as a private speculation and in open defiance of the Air Ministry experts although with the approval and connivance of certain intelligent officers of the higher ranks. But now its success is proved the said experts insist on regarding it as an official secret.

At any rate, as *The Morning Post* has published this information about the prospective Vickers machine one can confirm the statement that we have actually got in this country a two-seater which does 180 miles an hour and a bit more.

One hopes that this disclosure will persuade the so-called Intelligence Department of the Air Ministry that it may " release for publication " a certain amount of information about this particular machine, considering that it has been seen already by some thousands of people most of whom know quite enough about aviation not only to judge of its high excellence but also to be able to describe it fairly comprehensively to a good many thousands more. Retaining this bann of secrecy on the machine is merely making us ridiculous in the eyes of everybody except the Air Ministry's own experts, who have apparently neither a sense of proportion nor a sense of humour.

Competition is always good for trade and one is glad to see this competition between two of our leading aircraft firms. The result can only be for the good of the Royal Air Force and therefore of the whole defence scheme in the British Empire. And one would point out that the very greatest credit is due to the constructing firm which started this competition by building such a machine entirely at its own risk and expense.

R·A·F· TYPES — No 3.



THE FAIREY III.D. SEAPLANE.

Of the many types of aircraft which the Fairey Aviation Company have in service with the R.A.F. the III.D. Seaplane is perhaps the best known.

Ever since 1917 when the forerunner of this type was first produced as the FAIREY III. it has been steadily increasing in popularity with the R.A.F. until at the present time it is the most used and most dependable seaplane in the Service.

FAIREY AIRCRAFT

THE FAIREY AVIATION COMPANY, LTD.

HAYES, MIDDLESEX. HAMBLE, Nr. SOUTHAMPTON.

One very interesting point crops up in connection with the statement that the new Vickers machine will be fitted with a Napier Lion engine. The Lion is now our most provedly satisfactory engine at its power. It has done splendid work for the R.A.F. and for Civil Aviation both at home and abroad. And practically every foreign nation which professes to have an air force regards the Napier Lion as its standard of excellence.

There is no doubt that the Lion gives quite enough power to propel an aeroplane at the desired speed of 200 m.p.h. But when the problem of designing a two-seater fighter with full military equipment to fly at that speed arises the designer has to consider something more than mere power and has to consider the shape of his machine and its head resistance.

The Americans have attained their enormous speeds by the comparatively simple process of building engines such as the Curtiss, the Wright and the Packard which have their cylinders arranged in two banks, placed in a vee shape in relation to one another, with the carburettors in the middle of the vee. Thus when viewed from one end these engines present a very small area, all the power being put into the length of the engine instead of into the width or height.

Our Air Ministry experts insist on having the carburettors outside our engines instead of in the middle of the vee, with the result that our designers are forced to use very long inlet pipes to the cylinders, which makes carburation problems much more difficult. Also the projecting carburettors and pipes make the area of the engine, when viewed from the end, much greater and so force the aeroplane designer to make a bigger nose to his machine and so increase his head resistance.

There have been rumours going about the British Aircraft Industry for quite a long time that the Napier Company, always progressive in its ideas, has been working on a new design of engine. Therefore it is not unnatural to assume that Mr. Wilkinson, the firm's chief designer, and his Directors, have considered carefully this question of reducing the head resistance of their engines as a means of assisting our aircraft designers to compete with our kinsmen on the other side of the Atlantic.

Right through the War 1914-18 one fought strenuously against the Air Experts at the Royal Aircraft Factory, who insisted on turning what would have been good aeroplanes into a species of flying Christmas Tree. Since the War the Air Ministry Experts have carried on the tradition of the R.A.F. with results which have been ruinous to the efficiency of our Service aeroplanes.

Therefore one hopes that the efforts of the constructor of the 180-mile-an-hour machine, who must remain nameless until the Air Ministry's Intelligence Department shows signs of intelligence, may prove to be the first step towards providing our fighting aviators with machines as clean and as efficient as those produced in the United States and on the Continent of Europe, and that the competition between this unnamed hero and Vickers Ltd. may produce aeroplanes which are as far ahead of those of foreign competitors as all our aeroplanes could be if our designers were allowed a free hand by the Air Ministry Experts.—C. G. G.

A.D.C. AIRCRAFT LTD.

The following interesting piece of news has been received in connection with the company which has done so much good work as the Aircraft Disposal Company, Ltd., in the past.

Sir,—We beg to inform you that the registered name of this Company is now "A.D.C. Aircraft Ltd."

This change of name has been found desirable owing to the fact that we are now designers and manufacturers of aircraft and engines, in addition to our world-wide business of selling engines, aircraft and their spares from our stocks.

You will perhaps recall that some time ago we purchased the name, design and manufacturing rights of Martinsyde aircraft, and our aeroplane designer (Mr. Kenworthy) recently effected modifications to the design of the Martinsyde F.4 type, with the result that our new Martinsyde A.D.C.1 machine, fitted with a 380/420 h.p. Siddeley Jaguar engine has a remarkable performance as a modern high-speed fighting scout.

Our chief engine designer is Major Halford, who was one of the designers of the B.H.P. engine (the forerunner of the Puma), and he has been responsible for the design of our 27/60 h.p. Cirrus and 120/140 h.p. Airdisco engines, which are meeting with such success.

Our works are equipped with the most modern machinery and we work to the very highest standard, our system of inspection being organised on the lines laid down by the Aeronautical Inspection Department of the British Air Ministry, whose full approval it has received.

We have sold, and are still selling, great quantities of aviation material to practically every country in the World, and we shall continue to be in a position to supply our clients with aeroplanes, engines, spare parts, accessories, etc., to present-day standards of airworthiness, as laid down by the British Air Ministry.

(Signed)
For and on behalf of
A.D.C. Aircraft Limited.
(Signed) F. Collins.

The Aircraft Disposal Company Ltd. was formed in 1920. Under the able joint Managing-Directorship of Lt.-Cols. M. O. Darby and J. Barrett Lennard with Major Jack Stewart as Sales Manager, the Company have sold 2,000 aeroplanes and 3,000 engines. Moreover they have created a market for British aircraft all over the World, which would not otherwise have existed.

In accordance with their profit-sharing agreement with the Government they have paid to the Exchequer more than one and a-quarter millions of pounds.

As a designing firm they have already produced the Martinsyde A.D.C.1 and the Cirrus and Airdisco engines. There are now rumours of a new high-powered engine and a two-seater fighter as the firm's next products.

The Company started with the whole Aircraft Industry in violent opposition to them. Most businesslike firms have now seen the good that could be done by co-operating with the old Aircraft Disposal Company. And one hopes that those others who have not yet seen that good, will see it before it is too late for them to profit by it.

Everyone will wish the Company as much good fortune and good business as it has had in the past.

A ZEPPELIN ANNIVERSARY.

On Aug. 20, a series of anniversary meetings began at Friedrichshafen, in celebration of the first flight of Count Zeppelin's first airship 25 years ago. Those present included the Bavarian Premier (Dr. Held), the Reichswehr Minister (Dr. Gessler), the Minister of Transport (Dr. Krohne), and Dr. Eckener (the first Zeppelin pilot).

On Aug. 21, after a tour of the Zeppelin works and museum, Dr. Eckener spoke at a luncheon given by the Municipality. He spoke at length on past and present Zeppelins, his speech later developing into a political criticism of the Entente policy of suppressing German air development.

He appealed for the public support of a campaign to preserve the continuation of the work of Count Zeppelin. He stated that financial help would not be asked from the Reich, industrial or international financiers; he appealed for the exercise of self-denial, in the making of contributions, by the German people.

KANTARA TO KARACHI.

On Friday of last week Sir Sefton Brancker left London for Port Said by ship. The same day Colonel Birchall and Lt.-Col. Minchin left Croydon for Paris by air, whence they will travel by train and boat and will meet Sir Sefton at Port Said. The party will then proceed to survey the Kantara-Karachi air route on behalf of Imperial Airways, for the next six weeks.

As Imperial Airways Ltd. is unlikely to have its new machines ready for regular service until the summer of 1927, and as the service cannot be made a commercial success on old machines, the Directorate might just as well survey a route from Kimbolton to Kentucky, for all the immediate financial use it is likely to be to them. Still, if you do not buy new machines you *must* spend your subsidy on something, and it is just as well to look ahead.

M. RAPALIER.

On Aug. 21 M. Rapalier, the well-known Belgian pilot of the Dutch Pander monoplane, was killed. He was flying from Rotterdam to Riga, on one of the little Pander monoplanes, when, in trying to land near Dantzig, he flew into some telegraph wires. The machine crashed, and M. Rapalier was killed instantaneously.

M. Rapalier was 22 years of age, and since he took his "ticket" at Juvisy, in 1918, he had flown more than 2,000 flying hours.

Since the advent of the Pander monoplane he had accomplished a large number of notable flights on this machine, including many between Rotterdam and London, Paris, Brussels, Barcelona, etc. Since January of this year, he has demonstrated the Pander monoplane in practically all the countries of Western Europe, and it is largely due to his efforts that this little machine has become so well known in so short a time.

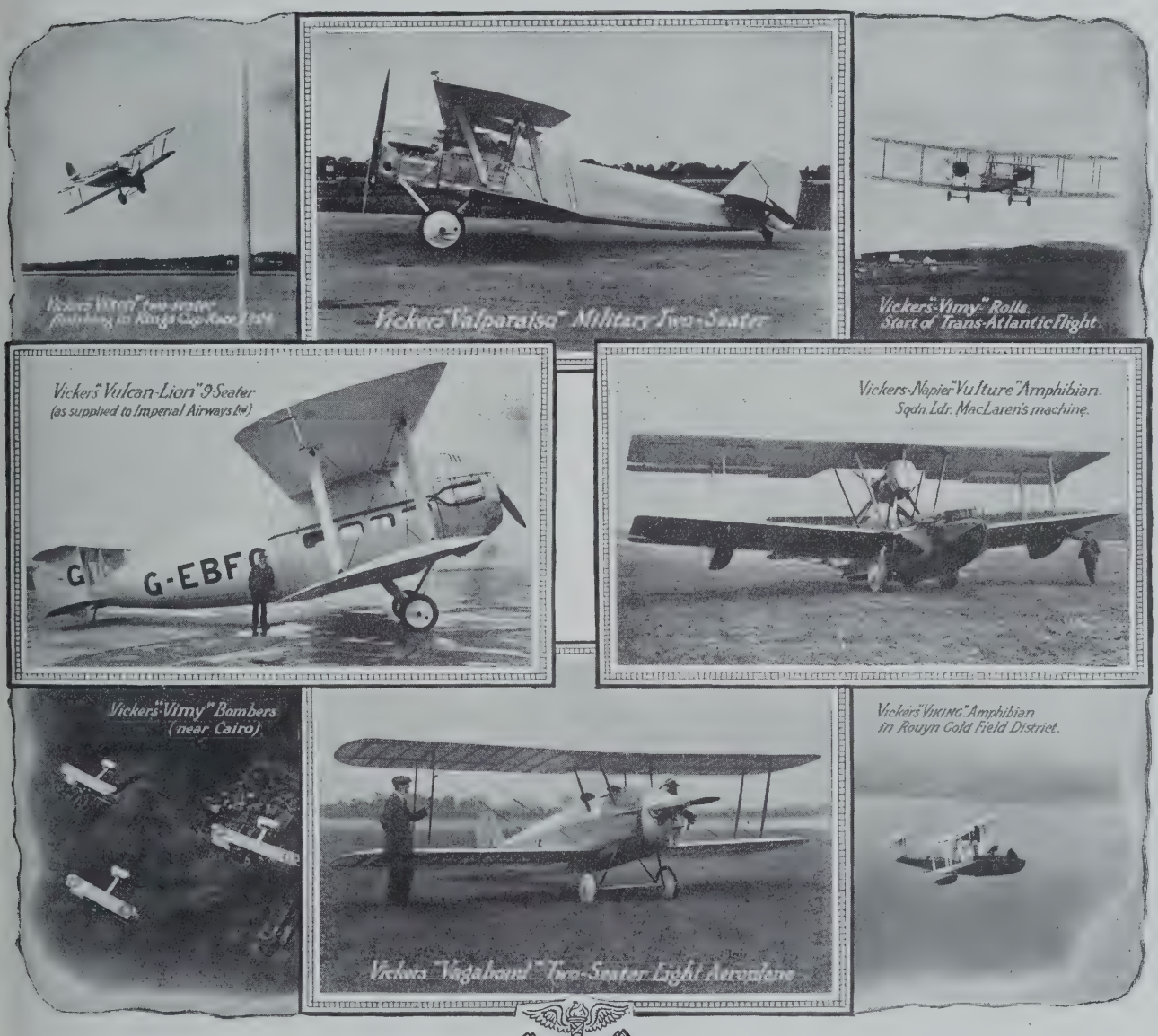
M. Rapalier was at the recent meeting at Lympne, whither he flew from Rotterdam, and competed in the Pander in various events.

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THE ROYAL AIR FORCE.

The London Gazette.

Aug. 18.

General Duties Branch.—The following are granted temp. comns. as Flg. Offs. on attachment for four years' duty with the R.A.F. (Aug. 10):—Lts., R.N., J. H. I. Wood, H. R. M. Nicholl, P. W. W. Wootten, H. F. Baker, N. R. Courthope-Munroe, J. W. Hawkins, R. F. B. Cecil. Sub-Lts., R.N., C. R. V. Pugh, A. Brock, E. J. E. Burt, C. John, A. N. Waring. Lt., R.M., R. W. Gordon.

The following Plt. Offs. are promoted to the rank of Flg. Off.:—W. C. Ward (June 19); E. R. H. Coombes (July 10); C. F. Steventon (July 14); C. R. Hancock, J. H. Powle, C. H. Tighe, A. H. Wheeler (July 17).

The following Plt. Offs. on probation are confirmed in rank (July 17):—R. D. Adams, E. Addis, C. A. Bell, R. L. Burnett, J. G. Chamberlain, S. A. V. Evans, D. S. Green, A. J. Holmes, N. K. Howard, F. M. Kellaway, J. C. Noel, L. F. T. Price, J. H. C. Purvis, D. C. Shaw, C. P. Vines, L. A. Walsh.

Sq. Ldr. A. Levick, O.B.E., is placed on the retired list and is granted the rank of Wing Commander (Aug. 15); Flt. Lt. P. W. S. Bulman, M.C., A.F.C., resigns his perm. comn. (Aug. 19).

The following relinquish their temp. comns. on return to Army duty:—Flt. Lt.—C. H. Goring, D.S.O., M.C. (Lt., R. Fus.) (July 13). Wing Cdr.—C. Fraser, C.M.G., O.B.E., M.C. (Maj. N. Staffs. Regt.) (Aug. 1). Flt. Lts.—R. Gambier-Parry (Capt., R. Welch Fus.); W. Hodgson, O.B.E. (Lt., D. of Wellington's Regt.) (Aug. 1) Flg. or Obs. Offs. (Hon. Flt. Lts.).—J. E. Catherall, M.B.E. (Capt., R. Warwick Regt.); W. E. (Brabazon) Dowling (Capt., E. Lancs. Regt.); J. P. Walters (Capt., D.C.L.I. (Aug. 1). Obs. Off.—C. C. Abrahams (Lt., K. Shrops. L.I.) (Aug. 1).

Stores Branch.—The following are granted S.S. comns. as Plt. Offs. on probation for five years on the Active List, with effect from and with seniority of, Aug. 10:—E. H. Broad, L. F. Caunter, E. G. M. Charleson, R. H. Clay, J. Cuming, D. J. Divett, G. H. Doveton (Lt., Indian Army, retd.), F. W. Felgate, E. J. Fishenden, C. P. Marshall, P. J. Mote, P. P. S. Rickard, L. Taylor, J. E. Welman.

The following are transferred on probation to the Stores Branch from the General Duties Brench, with effect from and with seniority of, Aug. 10:—Flg. Offs.—H. O. Fellowes (from Flt. Lt.), W. Bourne. Plt. Off.—A. J. Walker.

Accountant Branch.—The following are granted perm. comns. as Plt. Offs. on probation, with effect from and with seniority of Aug. 10:—F. Rigby, T. P. E. Campbell, R. J. Wishlade, J. O. Morrison.

Medical Branch.—Flt. Lt. D. G. Boddie, M.B., is promoted to the rank of Sq. Ldr. (Aug. 19). Flt. Lt. G. M. Mellor relinquishes his temp. comns. on ceasing to be employed and is permitted to retain his rank (Aug. 1). Capt. A. B. H. Cole, Army Dental Corps, is granted a temp. comn. as a Flt. Lt. on attachment to the R.A.F. for a period of four years (Aug. 1). He will continue to receive emoluments from Army funds. Flt. Lt. J. Wren (Capt., Army Dental Corps) relinquishes his temp. comn. on return to Army duty (Aug. 1).

Reserve of Air Force Officers.—Flt. Lt. P. W. S. Bulman, M.C., A.F.C., is granted a comn. in Class A, General Duties Branch, in the rank stated (Aug. 19). Plt. Off. C. E. Baldwin is confirmed in rank (Aug. 17). Flg. Off. F. J. H. Ayscough is transferred from Class A to Class C (Aug. 8).

Memorandum.—Sec. Lt. G. H. Shackleford is deprived of his honorary commission on convictions by the Civil Power (Feb. 16, 1922).

Appointments.

Week ending Aug. 24.

General Duties Branch.—Air Commodore I. M. Bonham-Carter, C.B., O.B.E., to No. 3 Group H.Q., Spittlegate, to command, 1/10.

Group Captain A. W. Bigsworth, C.M.G., D.S.O., A.F.C., to R.A.F. Training Base, Leuchars, pending taking over command on transfer to Home Estab., 5/8.

Wing Commander N. Goldsmith, O.B.E., to No. 3 Group H.Q., Spittlegate, for technical staff duties, 10/8.

Squadron Leader W. A. Coryton, M.V.O., D.F.C., to No. 24 Sqdn., Kenley, 17/8.

Flight Lieutenants F. O. Soden, D.F.C., to Inland Area Communication Flight, Northolt, 19/8. A. R. Jones, to Experimental Section, R.A.E., S. Farnborough, 17/8. G. G. Dawson, to No. 39 Sqdn., Spittlegate, 19/8. F. W. Trott, O.B.E., M.C., to Central Flying School, Upavon, 24/8. B. A. Malet, D.F.C., to No. 10 Group H.Q., Lee-on-Solent, 1/9. A. P. Davidson, to R.A.F. Depot on transfer to Home Estab., 16/8.

Flying Officers J. Silvester and E. C. Dearth, to C.F.S., Upavon, 24/8. H. E. King and W. J. Pearson, to Cadet College, Cranwell, 24/8. H. Ford, D.F.C., to No. 19 Sqdn., Duxford, 24/8. M. J. Du Cray, to No. 5 F.T.S., Sealand, 24/8. W. D. Gairdner, D.F.C., and A. Leslie-Moore, to R.A.F. Base, Gosport, 5/8. A. A. B. Chipper, to No. 405 Flight Leuchars, 5/8. (Hon. Flt. Lt.) C. M. E. Gifford, to Arm. and Gunnery School, Eastchurch, 7/8. F. P. Adams, to R.A.F. Depot on transfer to Home Estab., 4/8. G. Horsfield, to remain at No. 55 Sqdn., Iraq, instead of to R.A.F. Depot as previously notified. F. E. Vernon, to I.A.A.D., Henlow, 5/8. C. McL. Reid, to R.A.F. Depot on transfer to Home Estab., 5/8. A. K. Bamber, to Exper. Section, R.A.E., S. Farnborough, 24/8. E. G. Whinney, to School of Physical Training, Uxbridge, 1/9. I. A. Bertram, to No. 4 Sqdn., Sth. Farnborough, 17/8. G. I. C. Peacocke, E. C. de V. Lart and R. Melbourne, to No. 207 Sqdn., Eastchurch, 17/8. J. J. Nolan, to No. 16 Sqdn., Old Sarum, 17/8. A. W. Rowbotham, to No. 39 Sqdn., Spittlegate, 17/8. T. H. R. Riggs, D.C.M., M.M., to R.A.F. Depot on transfer to Home Estab., 23/5. J. Evason, to School of Balloon Training, Larkhill, 31/8. M. H. Steff, to Royal Airship Works, Cardington, 26/8. G. G. H. Du Boulay, to Night Flying Flight, Biggin Hill, 7/9.

Pilot Officers E. A. C. Bushell, to No. 19 Sqdn., Duxford, 24/8. J. A. Ballantyne, to No. 2 Sqdn., Manston, 24/8. N. S. Little, to No. 5 F.T.S., Sealand, 12/9. V. B. Bingham-Hall, M.C., and D. W. Trotter, to No. 4 Sqdn., S. Farnborough, 17/8. A. O. Pollard, V.C., M.C., D.C.M., R. G. M. Hill, F. C. Rowland and J. W. Vanderbeeck, to No. 13 Sqdn., Andover, 17/8. E. C. G. Badcock, to No. 207 Sqdn., Eastchurch, 17/8. G. B. Collet, to No. 2 Sqdn., Manston, 17/8. E. B. C. Groner and C. W. Switzer, to No. 9 Sdn., Manston, 17/8. L. R. Mizen, to No. 100 Sqdn., Spittlegate, 17/8. W. F. Rimmer, to No. 11 Sqdn., Netheravon, 17/8. G. A. Whitehead, to No. 39 Sqdn., Spittlegate, 17/8. H. C. Macphail, to No. 12 Sqdn., Andover, 17/8. L. Dalton-Morris, J. A. C. Florence, A. H. Frost, J. S. Georgeson, G. D. Harvey and R. J. Stevens, to R.A.F. Base, Gosport, 17/8. F. E. R. Dixon, to No. 60 Sqdn., India, 21/7. V. W. Soltau, to No. 60 Sqdn., India, 21/7. E. G. Rosling, to R.A.F. Depot, 4/11.

The undermentioned Pilot Officers are all posted on appointment to Perm. Comns. from R.A.F. (Cadet) College with effect 31/7:—Pilot Officers L. W. Cannon and A. V. Hammond, to No. 2 Sqdn., Manston. T. N. McEvoy, to No. 41 Sqdn., Northolt. J. Eaton, W. M. C. Kennedy and T. H. Carr, to No. 7 Sqdn., Bircham Newton. B. A. C. Danbury, R. C. Wilson, C. H. G. Bremridge and J. G. D. Armour, to No. 207 Sqdn., Eastchurch. H. H. V. Tristem, R. Kellett and B. W. Knox, to No. 3 Sqdn., Upavon. T. E. Worsley and G. E. G. Lywood, to No. 39 Sqdn., Spittlegate. G. P. Chamberlain and J. D'A. Keary, to No. 25 Sqdn., Hawkinge. A. D. Gillmore, to No. 13 Sqdn., Andover. J. A. P. Harrison, to No. 99 Sqdn., Bircham Newton. E. G. Hordern, to No. 17 Sqdn., Hawkinge. J. R. Jones and F. M. V. May, to No. 4 Sqdn., S. Farnborough. H. L. Patch, to No. 58 Sqdn., Worthy Down.

Medical Branch.—Squadron Leader T. C. St. C. Morton, M.D., D.T.M. and H., to I.A.A.D., Henlow, 24/8.

Flying Officers J. Parry-Evans, to School of T.T. (Men), Manston, 26/8. D. B. Smith, M.B., to No. 1 F.T.S., Netheravon, 14/8.

Stores Branch.—Squadron Leaders E. W. Havers, to Packing Depot, Ascot, 1/10. H. T. Foxen, to No. 7 Group H.Q., Andover, 26/8.

Accountant Branch.—Pilot Officers T. P. E. Campbell, J. O. Morrison, F. Rigby and R. J. Wishlade, to School of T.T. (Men), Manston, on appointment to Perm. Comns. (on probation), 10/8.

A Fatal Accident.

The Air Ministry regrets to announce that as a result of an accident at Charlton, Wiltshire, to an Avro machine of No. 1 Flying Training School, Netheravon, on July 14, John Ryan, Mate, Royal Navy, Fly. Off. R.A.F., the pilot of the aircraft, was killed.

Sir Philip Sassoon at Halton.

Sir Philip Sassoon, Under-Secretary of State for Air, paid a visit to Halton on Aug. 18, and inspected the School of Technical Training (Boys) on the occasion of the passing out of 684 Aircraft Apprentices.

The entire school paraded for the inspection, the passing-out term being distinguished from the others by carrying rifles and bayonets.

After the march past, Sir Philip Sassoon inspected the barracks and workshops, and saw the apprentices at work at the various trades.

Presenting prizes in the gymnasium, Sir Philip Sassoon said that at Halton the boys were given every opportunity of qualifying for an honourable profession. In the course of his remarks he laid particular stress upon the necessity for discipline. He said that the R.A.F. was an exacting profession, and that the first requisite was a sense of discipline. The best work was impossible without discipline.

He went on to say that responsibility would often be laid on them in the Service, and that they must learn to make quick decisions. The standard of the Service was built up by the character of each individual in the Service, and every one of them could contribute something to raise the standard of the whole.

The Wombwelley Tattoo.

A Torchlight Tattoo in aid of local charities was held at the R.A.F. Stadium, Uxbridge, on Aug. 19, by kind permission of Air Commodore I. M. Bonham Carter, Commandant, R.A.F. Depot.

The programme included the R.A.F. part of the Tattoo which will take place at Wembley in September, and a number of additional items, all of which were carried out with the punctuality and precision which is the special mark of the R.A.F. Depot.

The various trumpet calls and drum soundings introduced during the performance, were played with real beauty by the trumpeters and drummers of the R.A.F. Depot, and were made more than usually interesting by the historical notes printed as a foreword to the programme.

The various displays of marching, physical training, and so on, were accompanied by what was described on the programme as the Central Band of H.M. Royal Air Force. One was given to understand, however, that the excellent music was provided by what might be described as a Reserve Band, including a number of band-boys, owing to the fact that Flt. Lt. Amers and his star-turns were away fulfilling some professional engagement. One has heard the star-turn band play very much worse than its second line did.

The first part of the programme on Wednesday night, was devoted to Historical Combats, beginning with Quarterstaff Play, and continuing through the Sixteenth-Century Rapier and Dagger Duel, the Seventeenth-Century Broadsword and Buckler affair, and a Nineteenth-Century Prize Fight, to



THE D.H. TYPE 54 "HIGHCLERE"

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"The D.H. 54 carries fourteen passengers, has a top speed of 120 m.p.h. and lands at less than 50 m.p.h. She is undoubtedly the best Commercial Aeroplane in the World."
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The above photograph shows the "HIGHCLERE" taking off from Stag Lane Aerodrome.

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The de Havilland "MOTH" which has been described by FLIGHT as "the most practical light aeroplane yet produced" has been selected as their standard equipment by all the Light Aeroplane Clubs in Great Britain.

The photograph below shows the first batch of "MOTHS" ready for delivery.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Modern Service Boxing. The contests were carred out with great gusto by the individuals concerned, and caused unrestrained joy to the onlookers.

A choir of 200 voices drawn from the neighbourhood of Uxbridge, and conducted by Mr. C. E. Hodges, M.A., late R.A.F., then sang that rebel chorus, "The March of the Men of Harlech," and other dolorous ditties.

The display of marching and counter-marching by the band and drums with torches, was very well carried out indeed. This was followed by a physical training display, the sword-swinging part of which was perfect; and some very difficult vaulting-horse work was very nearly so, barring some comic unrehearsed effects.

A Tattoo by the Drum and Fife Band of the Depot, was followed by a massed physical drill and musical double, by 400 recruits of the Depot. An illustration of this drill, taken in daylight, appeared in THE AEROPLANE last week, and gives a slight idea of what a splendid show it is.

It is very satisfactory to contemplate that thousands of people will see this display during the month it is at Wembley, and will either marvel or appreciate, according to their experience. The amount of thought and hard work on the part of the instructors, and the keenness, physical fitness, and high intelligence of the recruits which go to make up such a fine exhibition of training, is fully worthy of our First Line of Defence—and Offence.

After that the same 400 recruits performed a number of torchlight evolutions and revolutions which would probably take the same number of ordinary civilians at least 12 months to learn. Which only shows what the mechanically-minded can do when directed by military intelligence. None of the recruits, who had enlisted to be mechanics, had been more than six weeks at the Depot, and some had only had three days of this particular drill.

The programme ended with a good display of fireworks and a certain amount of vocal effort on the part of the audience. The National Anthem was followed by "Lights Out," by the trumpeters.

Michelin flares, lighted all over the grounds "to facilitate easy exit," as the programme had it, was the finishing touch to the super-staffwork of a wholly excellent performance.

The "producer" is Flt. Lt. Wombwell, who deserves the greatest possible credit.—C. M. MCA.

The Wembley Tattoo.

The Torchlight and Searchlight Tattoo by the Services, began at the Stadium, Wembley, on Aug 24, and will be performed every night at 20.00 hours until Sept. 26. Any one item of the programme alone is worth going to Wembley to see.

The only grouse one has against the show is the somewhat morbid attempt to harrow the feelings of the audience contained in what is described as a finale of Dedication, Remembrance and Hope. Scenes from the late war are as out of place in Wembley Stadium as would be Colours in the Canteen.

The inevitable evening hymn with which these shows always seem to close is also rather trying to an audience thrilled and cheered by the stirring music of the best bands in the World, but one can always dive for one's homeward 'bus during the wailing of "Abide with me," even though it means sacrificing the marching out of the troops.

The Gunners' part of the show apparently does not begin until next week, when there will be several changes in the programme, but there is a delightful musical jumping display by the 8th King's Royal Irish Hussars.

The marching and counter-marching with torches of the Massed Bands of the Royal Marines, Brigade of Guards, and Royal Air Force, and the playing of the Massed Pipe Band, is as good as it was last year and early this year, and apparently just as popular.

The star turn of the evening was undoubtedly the Massed Physical Drill by the Recruits of the R.A.F. Depôt. Their evolutions and revolutions with coloured torchlights ran the P.T. show very close, but while every other item of the Tattoo was greeted with a burst of clapping on the opening night, the R.A.F. Recruits Display nearly took the roof off the Stadium with a roar of cheers. Flt. Lt. Wombwell and the Staff Instructors of the Depôt are to be heartily congratulated.—C. M. MCA.

The Halton Magazine.

The second instalment of Wing. Cdr. Read's article on "Crossing the Belgian Congo," appears in the summer number of *The Halton Magazine*. The article, which is extremely interesting, and very well illustrated, will be concluded in the Christmas issue.

Sir Sefton Brancker has written his own story of his flight to India, at considerable length in this issue. It is written in the same cheerful, amusing style in which Sir Sefton delivers his speeches and lectures, and the readers of *The Halton Magazine* are sure to enjoy it. The article ends with an itinerary of the route, a journey log, and a list of engine defects, all in tabular form.

Apart from Sir Sefton's article, Halton's Magazine, lik Cranwell's, is not very strong on the humorous side. Ther are certain music-hall turns who sing painful songs in ex cruciating voices, and then proceed to dance very well in deed—and one is inclined to ask—why sing at all? Similarl one might ask *The Halton Magazine* and its contemporary— Why try to be funny?—C. M. MCA.

Iraq Aircraft Depot, Sports Summary.

AQUATIC SPORTS.—The Aquatic Sports Season, for 1925 continues t live up to its remarkably successful beginning. At the second of th two very popular swimming meetings held in June last in the Hinaid Open Air Pool, "A" Squadron of Iraq Aircraft Depot scored a victory b beating all comers in the Baghdad area in a four-a-side team race b a matter of a few seconds. In the Depot Inter-Squadron Water Pol Tournament "A" Squadron again won, beating all the other team and thus securing the Cup. This meeting was an elaborate affair Taking place after dark, the pool was illuminated by electric lighting augmented by two powerful searchlights.

An excellent programme was carried through, and the meetin was honoured by the presence of the Air Officer Commanding, Ai Vice-Marshal Sir John Higgins, K.B.E., C.B., D.S.O., A.F.C. Th Band of the 2nd Battalion Beds. and Herts. Regiment played selection during the evening.

LAWN TENNIS.—The four courts available for play have been in grea demand every evening during the present summer.

During July an Open Singles and Doubles Tournament was held, th finals of which were played off on July 25-27. The Finalists an Runners-up were: Singles, L-AC. Boone, winner; AC.1. Neil, runner up.

Doubles, Cpl. Edgar, Cpl. Scott, winners; L-AC. Saunders, AC.1 Neil, runners-up.

POLO.—A Tournament was held at Mosul in July for the Lloyd Sargon Cup, the winners being Baghdad, who beat the 1/15 Punjab Regiment in the final by eight goals to six. The Regimental team's difference of handicap gave them five goals, but although they pu up a stubborn resistance Baghdad were better mounted, and alway had something in hand. Sq. Ldr. A. F. A. Hooper, O.B.E., of Iraq Aircraft Depot, played No. 2 for Baghdad. The other members of th team were Major Stafford, Sappers and Miners, Lieut. Ashcroft, Scind Rifles, and Flg. Off. Rourke, R.A.F. (captain).

CRICKET.—Probably never before has there been in Hinaidi so much and such keen cricket as this year. From April to early in June chief interest centred in the battles for the R.A.F. Challenge Cup The Depot XI to go furthest in this competition was "A" Squadron who were beaten in the semi-final by the ultimate winners, No. 2 Works Company, by 4 wickets, after five evenings' strenuous play "A" Squadron's shining lights are Flt. Lt. Carson, L-AC. Booker and AC. Carter.

In the third round "A" Squadron beat "C" Squadron and it was good work and something of a surprise to the whole Depot, as the latter Squadron played L-AC. Haxley and AC.1 Morris, both of whom were chosen to play in a joint services XI.

Since June friendly matches have been the order of the day, and the bowling of AC.1. Shadbolt of "B" Squadron has been outstanding. It is a pleasure to record that the R.A.F. Iraq Cricket Association have awarded bats to L-AC. Haxley of "C" Squadron and to Cpl. Hallifax of "D" Squadron for centuries scored against the "Casuals" Club and No. 8 Squadron respectively.

Three Depot matches have been played against the "Casuals," a Baghdad civilian team. The first, played at Alwiyah on May 15 and 16, was notable for a fine innings of 87 by Capt. Teague, and for 6 wickets for 24 runs secured by Mr. Wheatley of the home team, who won by 106 runs. The second, also played at Alwiyah, on May 22 and 23, was of a more even nature, L-AC. Haxley and AC. Puncher scoring 94 between them, and AC. Shadbolt getting 6 wickets for 35. For the "Casuals," Mr. Chadwick replied with a forcing innings of 51, well backed up by Mr. Lynam. The Depot won by 23 runs. The third and last match took place at Hinaidi on July 17, 18 and 19, the scores being, "Casuals" 167, Aircraft Depot 96. The sporting spirit always displayed by the "Casuals" always make these fixtures enjoyable to attend. For the first season since 1920 cricket in Iraq has been kept alive throughout the whole of the hot season, which speaks volumes for all concerned.—R. H. W. E.

Encouraging the Airmen.

There is interest in noting that in addition to the Landing Competition and the Message-Carrying Competition which were held at the Andover At Home on July 29, there were two other competitions in connection with these. One was for the best-kept Avro competing in the Landing Competition and the other was for the best-kept Bristol Fighter competing in the Message Competition.

The prizes in these competitions went to the fitters and riggers of the winning aircraft. In the former event the prize for the best-kept Avro went to the men of the R.A.F. Staff College, and the prize for the best-kept Bristol went to the men of No. 16 (AC) Squadron from Old Sarum.

This is a type of competition which might well be developed further in the R.A.F. Even at Station sports, and so forth when a little flying is done to amuse the crowd in the interval a prize might be given to the best-kept machine on the Station or in the Squadron. The amount of the prize need not be large because the sporting spirit of the "Other Ranks" in the R.A.F. is such that the men are always willing to work themselves to a shadow for anything which involves competition between units or sub-divisions of units.

Happily the men of the R.A.F. are about the keenest people as a body whom one has ever met? But even so, a little prize competition is of value, for not only does it put a finer edge on their keenness, but it is a reward for service rendered which is always appreciated even by the most earnest workers.

—C. G. G.

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Illustrated Catalogue on application.

THE SAVAGE-BRAMSON ANTI-STALL GEAR.

The now well-known Savage-Bramsom Anti-Stall Gear which has recently been designed by Mr. Bramson and tested on one of Major Savage's sky-writing S.E.5s, seems to possess distinct advantages over any other arrangement yet produced or suggested to prevent pilots from inadvertently stalling an aeroplane.

Essentially the apparatus consists of a cylinder and piston, coupled to the frame of the aeroplane and to the control stick in such a way that when compressed air from a suitable reservoir or other source of supply is admitted behind the piston a very decided and unmistakable force is applied to the stick in a forward direction.

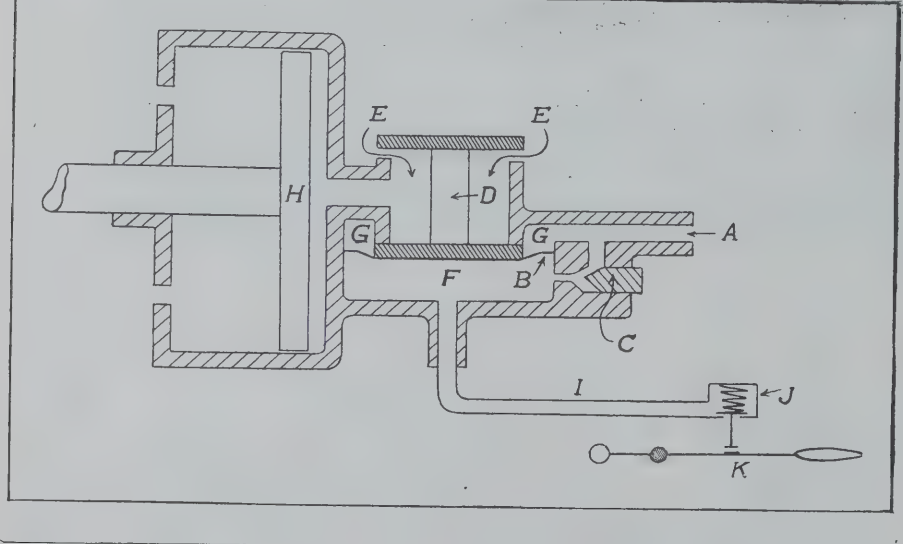
The admission of compressed air to the cylinder is controlled by a relay, which in turn is controlled by an incidence vane, so arranged that the relay is energised at some predetermined angle of incidence of the machine slightly less than the angle of stall.

The incidence vane is an aluminium plate of streamline section, carried by an arm pivoted on a bracket which can be attached to an interplane strut. The vane itself is ahead of the pivot, and is balanced by a streamline weight behind that pivot. Such a system is completely unstable, but if, as in this case, the movement of the vane about the pivot is limited to a very small angular range by suitably arranged stops, this lack of stability makes it very decisive in its action.

If the stalling incidence of the wings is 15°, and the vane and its stops are so adjusted that with the vane hard against the lower stop its incidence is 14° less than that of the wings, while when against the upper stop its incidence is ½° more—or 13½ less than the wings—it is obvious that a down load holding the vane on the lower stop will exist during flight until the wing reaches at least 13½° incidence, and that under no circumstance can an up load be deferred after 14° incidence is attained. By reducing the range of movement between stops the possible angular range of incidence between a positive holding down of the vane and an equally positive forcing of it up can be made as small as desired.

The upper stop used on the Bramson-Savage incidence vane is a small spring-loaded mushroom valve, the opening of which controls the relay and consequently the admission of air to the operating cylinder. This relay is essentially of a type of relay used to control automatic piano-players, and has therefore the very great advantage that it has been extensively used and has been found to be extremely reliable in action.

A diagrammatic sketch here reproduced shows the principle of this relay. Compressed air from a reservoir is admitted through the passage A to both sides of a flexible diaphragm B. On one side of this diaphragm air is freely admitted to the annular chamber G, which is closed by one head of a double-beat valve D. The diaphragm B itself is so arranged that it tends to keep the valve on its lower seating. On the other side the compressed air is admitted to the chamber F through an adjustable "leak" at C. F is coupled by suitable piping to the valve J controlled by the incidence vane K. So long as J remains closed, and there is no escape from chamber F the air pressure in F is equal to the pressure in G.



The whole surface of the diaphragm B is subject to this air pressure on the lower (F) side, whereas on the upper (G) side an area equal to that of the valve head is shielded from air pressure. Consequently the valve D is forced upwards into contact with the lower seat, whereas the upper head is held off its seat. As a result the piston H of the operating cylinder is in communication with atmosphere through E. As there are permanent openings in the cylinder cover there is no constraint on the piston, which will move backwards and forwards freely with movements of the control column.

But if the valve J is opened by the incidence vane K as the result of an approach to stalling the air pressure in chamber F is released, whereas that in G is maintained less the small drop caused by the leak C. There is thus an unbalanced pressure in G which forces the valve D downwards, closes the passages (E) to atmosphere, and admits compressed air past the lower valve seat to behind the piston H and produces a force pushing the stick forward. The actual construction of the relay and cylinder gear is naturally not precisely as here represented, but the action of the apparatus is accurately represented by the above description.

In the gear as actually fitted to an aeroplane, the coupling of piston rod to control column and of the cylinder to the frame of the aeroplane is accomplished through universal joints so that the controls may freely be moved in all directions.

The size of cylinder, working air pressure and lever arm at which the piston rod works on the column are so adjusted that the force on the stick when air is admitted to the cylinder is sufficiently great to be unmistakable, but small enough to be overcome without serious effort. Thus the pilot who wishes to stall—as in the final stage of landing—may do so, but he cannot do so without being warned.

On the S.E.5 to which this gear has been fitted, air is supplied by the standard Hispano engine-driven air pump to a small reservoir of sufficient capacity—even if the pump fails—to give half-a-dozen stalling signals. Obviously a windmill-driven pump would serve as an alternative source of supply.

There seems to be very little doubt as to the reliability of the gear. The only defect which seems likely to disturb the regular action of the whole is a leak in the piping between relay and incidence vane. It should be pointed out that for such a leak to cause premature action, the leak has to be large compared to the adjustable leak C. If such a leak did occur the pilot would merely receive a stalling signal when he was not in fact in any danger of stalling. It would generally be perfectly obvious that the signal was the result of a defect, and as the air reservoir used is necessarily small and fairly rapidly exhausted, he would at most have to fly for a few minutes with a few lbs. extra load on his stick—assuming that he did not at once turn off the air supply.

One excellent feature of the arrangement is that probably as the result of leakage during the time taken by the valve D to move from one position to the other, the load is applied to stick relatively gradually, and not with a jerk. The feeling is very much as though an instructor in the seat behind had gently but firmly urged the stick forward, and is not in the least of a nature to cause alarm. Altogether it would seem that the Savage-Bramson gear should serve not only as an excellent monitor to save pupils on their early solo flights, but also as a standard equipment on all machines.

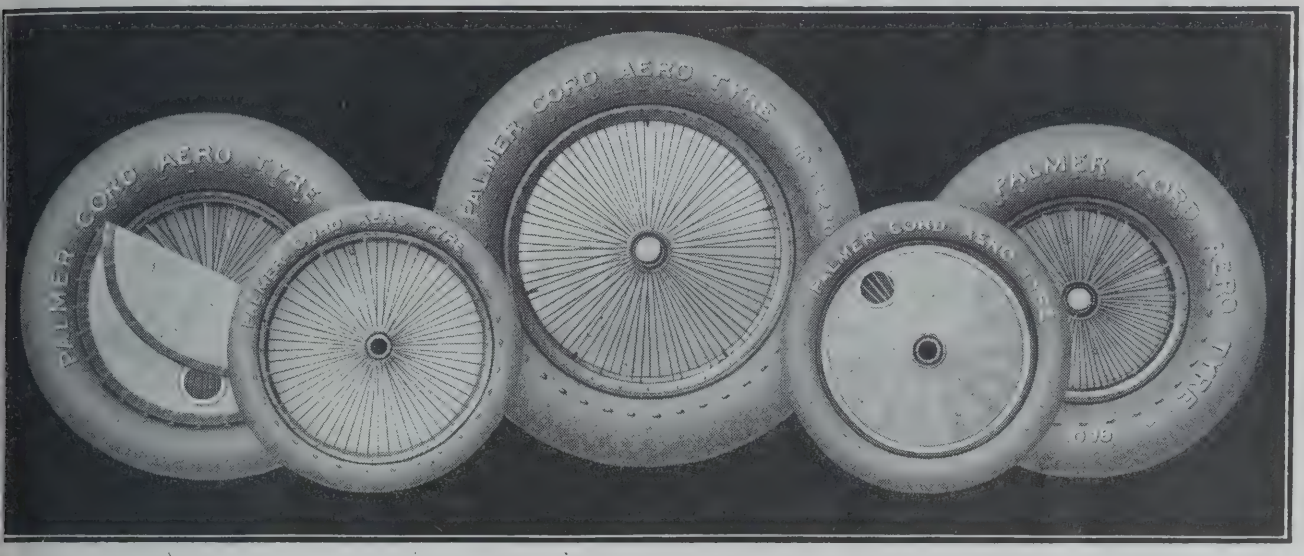
In an emergency even the most experienced of pilots may have his attention distracted and fail to notice the approach of a stall. He could scarcely fail to notice the signal given by this apparatus—which, nevertheless, in no wise limits his freedom of action.

SOVIET AEROPLANES IN CHINA.

On Aug. 20 two Soviet aeroplanes arrived at Shanghai from Nanking. Their arrival was the occasion for much enthusiasm from a large crowd of Chinese and Russians, including students carrying banners, one of which was inscribed "Cancellation of Unequal Treaties." These two machines are the remains of ten that attempted to fly from Moscow to Pekin. The extension of their flight to Shanghai was no doubt made to add a little colour to the recent Bolshevik machinations in Southern China.

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,,	17	72.39	12.7	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
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,,	111	150.	38.09	104/46	,,	96	178.	55.	132/46	,,	108	185.	55.	125/60
600×75	21	160.	28.	Central	,,	99	178.	38.89	132/46	,,	128	220.	66.67	Central
,,	34	150.	31.75	104/46	,,	112	150.	38.09	Central	,,	137	250.	80.	Central
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50	,,	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	,,	85	185.	55.	Central	1100×220	134	220.	66.67	Central
,,	79	178.	44.45	Central	,,	161*	185.	55.	135/50	,,	136	250.	80.	Central
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,,	92	185.	55.	135/50	1000×150	131	220.	66.67	Central	1500×300	115	304.8	101.6	Central
,,	95	185.	55.	Central	,,	150	185.	55.	Central	,,	126	304.8	152.4	Central
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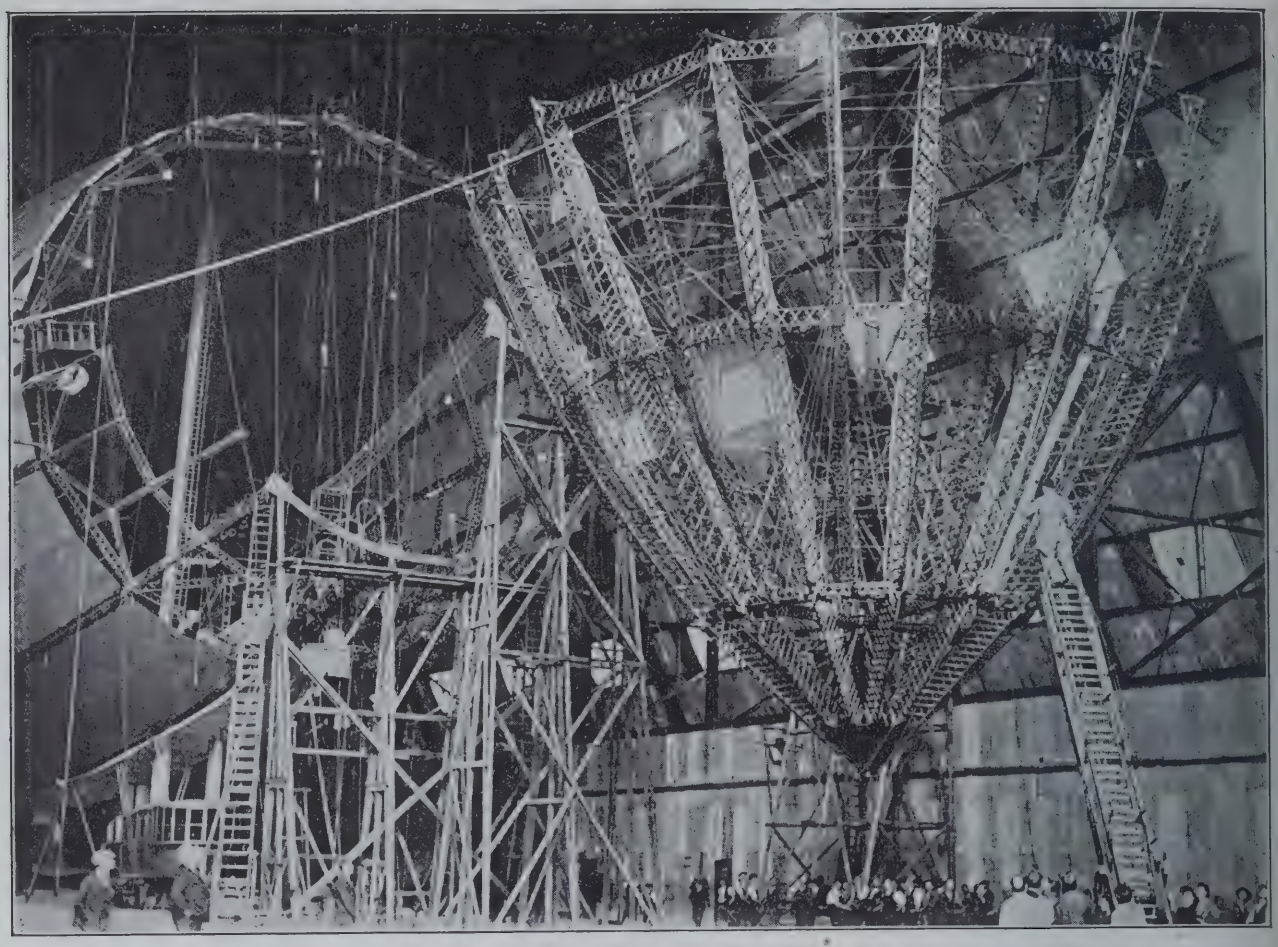
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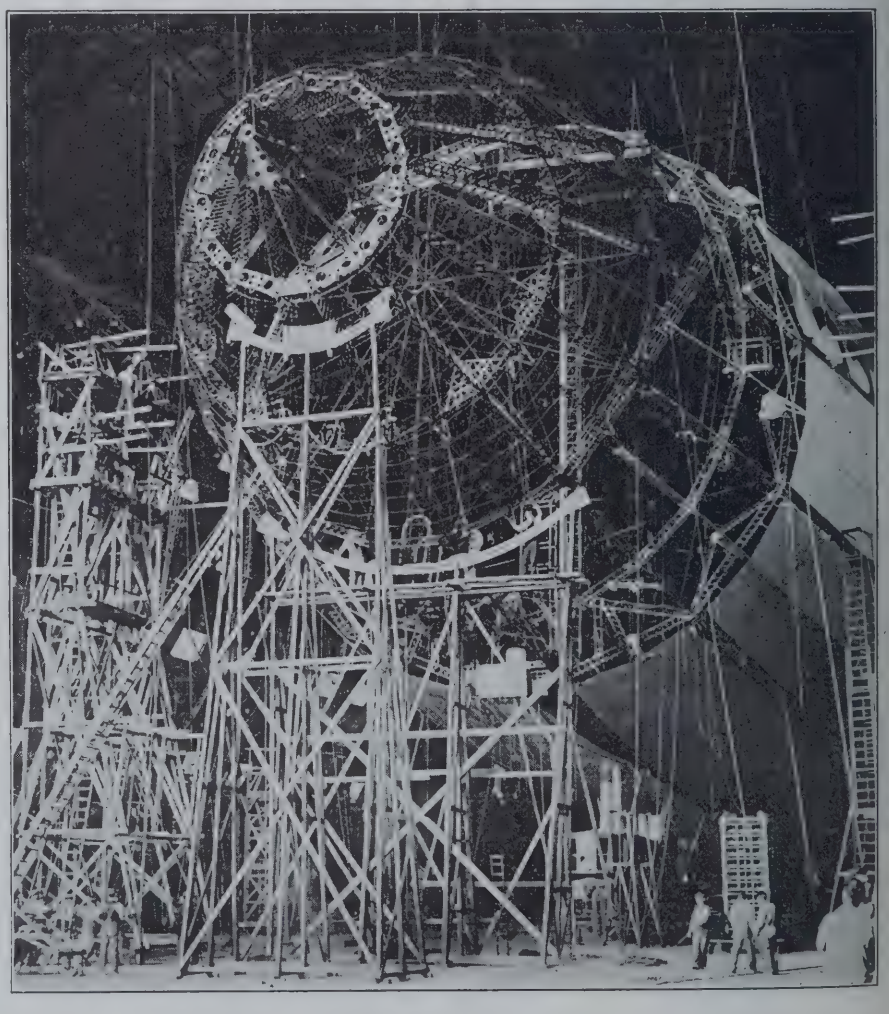
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(240

THE R.33's NEW NOSE.





On Aug. 18 the new nose of the R.33 was hoisted into position at Pulham. The top photograph shows the new 35 foot long nose-piece consisting of the nose cap, mooring tube and the strengthened longitudinal girders and cross-frames standing upright on a cradle preparatory to being hoisted into position.

The actual lifting operation was directed by Major Scott, Officer in Charge of Flying, and was carried out by 200 men, vocally directed by a foreman-rigger armed with a megaphone. The 200 men were distributed over the floor, roof and walls of the shed.

First of all the nose piece was hoisted still nose down into a position opposite the waiting airship. The nose was then tilted until it was in correct axial relation to the airship, when it was lowered onto two built-up jigs which finally fixed its position as shown in the lower photograph.

The whole lifting operation took 50 minutes. The actual registering of the old and new material took place on the following day. Two weeks will be required to connect up all girders and cross girders and it will probably be another four weeks before the ship will be ready to resume the full scale experiments to be carried out in connection with the design work on the new 5,000,000 cubic feet airship R.101 to be constructed at Cardington.

The R.36, which is alongside the R.33 at Pulham, is also being reconditioned and will be fitted with a strengthened nose of identically the same type as that fitted to the R.33.

A.D.C.

"Puma" Efficiency and Reliability

The IDENTICAL **240 h.p. "PUMA"** engine which was fitted into the D.H.50 machine which won the

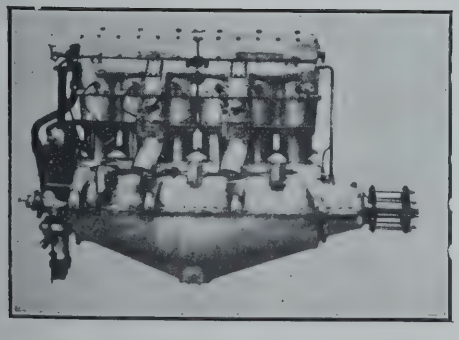
KING'S CUP AIR RACE, 1924,

(Pilot, Mr. A. J. Cobham), was used for the flight

LONDON to MOROCCO in ONE DAY and BACK

(Pilot, Mr. A. J. Cobham), and has recently been flown to **LISBON and BACK** (Pilot, Mr. H. H. Perry).

Further proof of the exceptional reliability of the Puma engines, has been afforded by the **17,000** mile flight, LONDON to RANGOON and BACK by Air Vice-Marshal Sir W. Sefton Brancker, Director of Civil Aviation (Pilot, Mr. A. J. Cobham). Extreme temperatures were experienced, but the engine ran faultlessly throughout, and is now on view at the Air Ministry Stand, in the Palace of Housing and Transport, British Empire Exhibition, Wembley.



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THE LIGHT AEROPLANE CLUB MOVEMENT.



THE MODERN MAGIC CARPET.—The De Havilland Moth (A.D.C. Cirrus), piloted by Mr. G. F. M. Sparkes, with Sir Philip Sassoon as passenger, about to start on the first flight made on the opening of the London Aeroplane Club. The Moth is really a "go-anywhere" machine and compares favourably with the "machine" recently revived by Mr. Douglas Fairbanks in his famous film "The Thief of Baghdad."

On Wednesday, Aug. 19, the London Aeroplane Club which has been formed by the Royal Aero Club to encourage the flying of light aeroplanes in the London Area, was opened by Sir Philip Sassoon, Under-Secretary of State for Air, The headquarters of the Club are at the aerodrome of the de Havilland Company, at Stag Lane.

These clubs were formed some time ago, and quite a while ago the Lancashire Aero Club began work at Manchester. Over a month has passed since the Lancashire Club took delivery of its first Moth and long before that it had designed its own light aeroplane and before that its own glider. In addition to that Colonel Darby, now of the A.D.C. Aircraft Ltd. (late Aircraft Disposal Co. Ltd.), had presented the Club with an Avro.

However, better late than never, the London Aeroplane Club opened itself on Wednesday. Moths of diverse hues were paraded on the ground, among them being two grey ones which belong to the London Aeroplane Club. A small crowd of members assembled at 10 o'clock, when the Chairman, Lt.-Col. Frank McClean, himself one of the first British pilots, invited Sir Philip Sassoon to open the Club.

Sir Philip, in his inaugural speech, said that this event was a matter for congratulation for there had been many doubters on the subject of light aeroplane clubs and many difficulties had to be overcome. Forgetting that the Lancashire Aero Club had been at work for months, he congratulated the Committee and members of the Club on having won for London and rightly for London the first light aeroplane club in the country. He said that the Air Ministry would give every sympathy and assistance within limits, but the Air Ministry did not pretend to carry these Clubs on its back.

Col. McClean read a telegram from the Duke of Sutherland expressing regret that owing to business abroad he could not be present, but he wished the Club every success. Col. McClean thanked the Air Ministry for its help and then invited Sir Philip to make the inaugural flight.

Sir Philip then emmothed and made an extensive flight over the surrounding country. On demothing, Sir Philip expressed himself as being very pleased with the behaviour of the machine.

The pilot on this occasion was Mr. G. F. M. Sparks, Senior Instructor, who may be remembered several years ago as a winner of a race at Croydon. Since that he has been working as pilot to a number of joy-riding concerns throughout Great Britain. The second instructor is Mr. G. T. Whitcomb.

It was hoped that Mr. Perrin, the energetic secretary of the Club, would make his first flight during the morning in a Moth, but unfortunately there were too many members wishing to fly and it would not have been fair to those had he ascended. Nevertheless now that the opportunity is there it is expected that he will have his *baptême de l'air*. Besides which his famous orange suiting would blend so well with the grey of the Moths. It was for that very reason that a quiet colour was chosen.

After the inaugural opening the members of the London Aeroplane Club (which, by the way, is no connection whatever with THE AEROPLANE newspaper), drew lots for the order in which they would be put on the flying roster, and instruction started in earnest.—G. D.



WHAT LANCASHIRE DID YESTERDAY.—Sir Philip Sassoon opening the London Aeroplane Club. From left to right are seen Capt. C. B. Wilson (legs only), Mr. Perrin, Col. McClean, Sir Philip Sassoon, Major Mayo, Sir Sefton Brancker, Col. The Master of Sempill. Entirely unsung, the Lancashire Club has been open for months. It has built itself one light aeroplane and flown it and took delivery of its first Moth a month ago.

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 29; Tuesday, 27; Wednesday, 28; Thursday, 37; Friday, 31; Saturday, 31; Sunday, 13.

IMPERIAL AIRWAYS LTD.

London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 72, passengers 430, freight 17 tons.

AIR UNION:

Paris—London: Machines 89, passengers 562, freight 11 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 24, passengers 104, freight 2½ tons.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 8, passengers 27.

SPECIAL MACHINES:

DE HAVILLAND HIRE:

Machines 3, passengers 2.

Total number of trips by British machines: 75, carrying 432 passengers. Foreign machines: 121, carrying 693 passengers.

Comparative Figures.

For week ending Aug. 23:

Machines, 196; Passengers, 1,125; Crews, 281; Total personnel, 1,406.

Corresponding week, 1924:

Machines, 176; Passengers, 904; Crews, 223; Total personnel, 1,127.

Corresponding week, 1923:

Machines, 144; Passengers, 724; Crews, 231; Total personnel, 955.

Corresponding week, 1922:

Machines, 176; Passengers, 642; Crews, 303; Total personnel, 945.

Corresponding week, 1921:

Machines, 114; Passengers, 437; Crews, 140; Total personnel, 577.

Corresponding week, 1920:

Machines, 123; Passengers, 262; Crews, 154; Total personnel, 416.

Croydon Notes.

Things are improving, presumably. Last week Imperial Airways Ltd. carried 430 passengers on all their services compared with 562 passengers carried by the Air Union on the London-Paris route alone. Perhaps it is a better comparison to say that against the Air Union's 562 passengers on the London-Paris route, Imperial Airways could only show 274.

One wonders whether the Directorate have placed any orders, over and above the three already known, for new machines.

Anyway, it speaks volumes for the Croydon management, pilots and ground staff, that they have really done as well as they have with the material available. When the time comes in the dim and distant future when the Directorate do their preliminary duty and equip the Company with an adequate amount of suitable flying stock, it may be expected confidently that they will do unto others as they are at present being done unto.

The D.H.54 is now being tested at Stag Lane by the Imperial pilots. So far Major Brackley and Messrs. F. L. Barnard and Wolley Dod have flown it, and one understands that they all like it very much.

Last week one alluded to the fact that Mr. McIntosh had done 2,500 hours civil flying. Mr. Gordon Olley states that he has now completed 3,200 hrs. He accounts for his extra flying hours by the fact that during that dark time when the British lines closed for a while, he was flying in Holland for K.L.M. In this connection it would be interesting to know how much time was done by the late Mr. George Powell. One imagines that his flying hours must have been in the region of 3,000.

Mr. Hewlett, who (with the assistance of "Buster," who is quite a large man nowadays), presides over the destinies of the Anglo-American Oil Co. ("Pratts"), at Croydon, is doing great business. He supplies petrol to the Air Union, and that nowadays must be a very big job indeed. Mr. Hewlett rather prides himself on his quick "fill-ups." And he has to be pretty quick with the droves of Goliaths that arrive nowadays.

On Monday of this week, a mysterious summons arrived from the Air Express Company Ltd., which one believes is not entirely ignorant of the existence of the Junkers firm, stating that a mysterious aeroplane would arrive at Croydon on Monday afternoon of this week, with a mysterious cargo. Knowing the habits of pre-boomed aircraft coming to Croydon one did not go and greet it, and, sure enough, it did not arrive. It was however expected on Tuesday morning.

It is a three-engined Junkers of Swedish registration, carrying a load of bullion, and is said to be German reparation money in hard cash. Anyway, we shall all be delighted to spend it if it comes our way. When it is unloaded the machine might be sent to France bearing the text "Go thou and do likewise." [It arrived on Tuesday morning with £10,000,000 in notes and bonds.]—G. D.

Parachutes.

The following letter from Col. The Master of Sempill, is of historical interest:—

Sir,—I have read with interest the leading article in your issue of Aug. 12, entitled "On Misrepresentation."

I was very glad to see that amongst those who have done extensive Parachute research you mentioned the name of Lt.-Col. Holt, the inventor of the Autochute and undoubted pioneer of the "free type" of parachute, the merits of which he has endeavoured to demonstrate to and have tried by the Air Ministry over a period of several years, without success. Although experiments were started about 1915, it was not until several years later that the first type of Autochute was produced, which of course has been considerably improved in its latest form which I have had the opportunity of examining.

The late Air Commodore Maitland, with whom I was associated in parachute developments from late 1916, was a confirmed believer in the "free type" parachute, and was in fact carrying out tests at Howden during the time that the R.38 was being prepared for her projected trip to America and whilst the American crew were under training. We were comparing notes on the observation of the Autochute, a model of which I had ordered in 1920 and taken to Japan in the belief that this would prove eventually the right type of parachute, a belief that practical experience more than confirmed.

It would seem that the proverbial initiative of the Americans in using parachutes and saving lives thereby eventually influenced the Air Ministry, who having scoffed at the parachute in the past, particularly the "free type," were seized with a panic to acquire parachutes of this type from American sources. Forgetting the years of toil and experience of a British subject they ordered this American model, which was in the main developed by the American Air Service. I understand that it is claimed that this American parachute infringes a patent held by Colonel Holt and it is also reputed to infringe a patent held by Mr. Democratis.

The whole question, Sir, does not reflect credit on the Air Ministry, but consideration of space prevents the ventilation of all the facts.

Might I venture to add that the R.A.F. would I am sure have done excellent work on Parachutes had those governing that Establishment in the Air Ministry permitted such. Forgive me disagreeing from you on this last point. (Signed) W. SEMPILL.

Melbourne—Tokyo.

Major the Marchese de Pinedo, who has flown from Rome to Melbourne, and who is now proceeding to Tokyo, left Sydney on Aug. 6 and arrived at Brisbane the same day, having covered 450 miles in four hours.

On Aug. 7 he flew from Brisbane to Rockhampton, Queensland. On Aug. 10 he arrived at Townsville. On the 11th, he reached Innisfail, North Queensland. And on the 12th, he arrived at Cooktown, N. Queensland.

On Aug. 13 he was reported to have arrived at Thursday Island. And on the 14th he reached Merauke, Dutch New Guinea.

A telegram received in Rome from Amboina, Molucca Islands, on Aug. 17, stated that he had arrived there from Dobo, Aru Islands, and was staying there for three days owing to bad weather.

On Aug. 18, however, he was reported to have arrived at Menado (Celebes). And on Aug. 19 he reached Zamboanga, on the island of Mindano, in the Philippines.

On Aug. 22 he flew from Zamboanga to Cebu in stormy

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weather, and in alighting he came into collision with a steamer, sustaining slight damage. The repairs were done on the spot.

On Aug. 23 he left Cebu, Phillipine Islands, for Manila. He encountered heavy squalls, and was driven down near Eastern Luzon, and after an unsuccessful attempt to continue his flight, was forced to shelter at Atimonan, Tayabas.

Tokyo—Paris.

The two Japanese-built Bréguêt XIX biplanes which are flying from Tokyo to Paris and London, arrived at Moscow on Aug. 23 accompanied by ten Russian aeroplanes. A huge crowd awaited the arrival of the two aeroplanes, and among those present were M. Litvinoff, the Vice-Foreign Commissar, and the Japanese Ambassador.

Newspapers state that as the machines landed the crowd burst into cheers, and a military band played appropriate airs. But why record these facts? If the machines had landed *in* the crowd and burst into flames and/or tears, both or either, and if the band had played inappropriate airs, such as "Keep the Home-Fires Burning" or "Oh, Dry those Tears," there might have been something about which to write home.

Spanish Seaplanes at Gibraltar.

On July 23 a detachment of seaplanes from the Spanish aircraft carrier *Dedalo,* which is anchored off Algeciras, carried out exercises, including bomb-dropping, over the Spanish part of the Bay of Gibraltar. According to *The Times* this is the first time Spanish aircraft have flown near Gibraltar.

A Puma Record.

On Aug. 16 Lieut. Fabry, of the Belgian Flying Corps made an non-stop duration flight of 15 hours, flying a standard military D.H.9 (240 h.p. Siddeley Puma engine), which had been equipped with additional fuel tanks. He left Wevelghem aerodrome at 05.02 hours, and landed at 20.05 hours, having covered a distance of some 1,200 miles.

The good old Puma has done many fine flights, but this must be its record non-stop performance.

Mr. Siddeley's Accident.

All will be pleased to hear that Mr. and Mrs. J. D. Siddeley and Miss Joan Siddeley, who were injured in a head-on collision with another driver's car some while ago, are all going on well. The cause of the accident was a collision with another car, the driver of which was apparently overcom with physical tiredness and was dozing, a thing which, a all drivers know, can easily occur.

Mr. Siddeley suffered from shock and his wife was bruised but Miss Siddeley was seriously cut about the throat. Sh is now at home, and is convalescing satisfactorily.

Mr. Siddeley is the managing-director of Sir G. Armstrong Whitworth Aircraft Ltd., and Armstrong-Siddeley Motor Ltd., of Siskin and Jaguar fames respectively.

Cellon Dope.

It is of interest to learn that all the Bristol and Parnal machines which competed at Lympne were doped with Cellon Among other things it may be remembered that the Parnal Pixie II put up the best performance over the 50 km. course

Short Bros.' Sports.

Sports, organised by Short Bros. Ltd., at Rochester on July 2 attracted a very large number of entries (particularly in the ope events) and a crowd of spectators.

In the closed events E. Sweetman retained the "Moat" Junio Challenge Cup for 100 yards' boys flat and also the "Rolls-Royce Perpetual Challenge Cup for 220 yards boys' flat; F. Wyborn retaine the "Commander Briggs" Challenge Cup for veterans of 40 year and over.

The 'Bus Shop retained the "Staff" Challenge Cup for the tug-of war; the Inter-Shop one mile relay for the "Staff" Challenge Cu was won by the Engineers, the Fitters (holders) being second. J. T Pateman was Victor Ludorum. Mr. Oswald Short presented the prizes

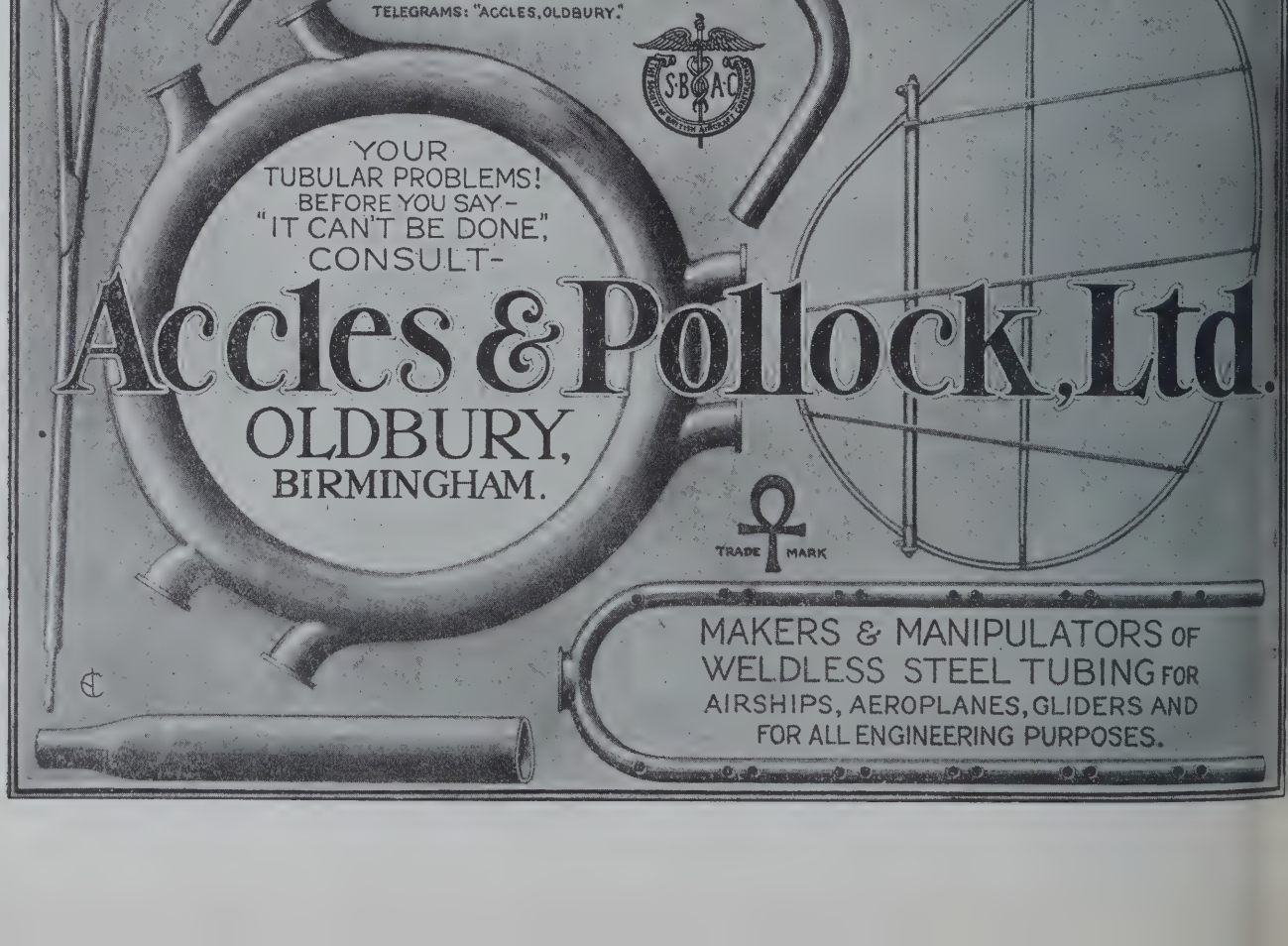
Mortgages and Charges.

British Anzani Engine Company, Ltd.—Particulars filed of £9,00 debentures authorised Dec. 3, 1924, charged on the Co.'s under taking and property, present and future, including uncalled capital the whole amount being now issued. (The whole of the debenture of this series are issued at a discount of 10 per cent. pursuant t and are subject to the terms of an agreement of same date betwee the Company and C. J. Fox.)

British Anzani Engine Company, Ltd.—Satisfaction (1) to th further extent of £960 on Dec. 23, 1924, of debentures dated Sept. 2 1921, securing £2,400, and (2) to the further extent of £2,000 on sam date of first debentures dated Sept. 10, 1920, securing £10,000. (Th whole of the two series are now fully satisfied.)

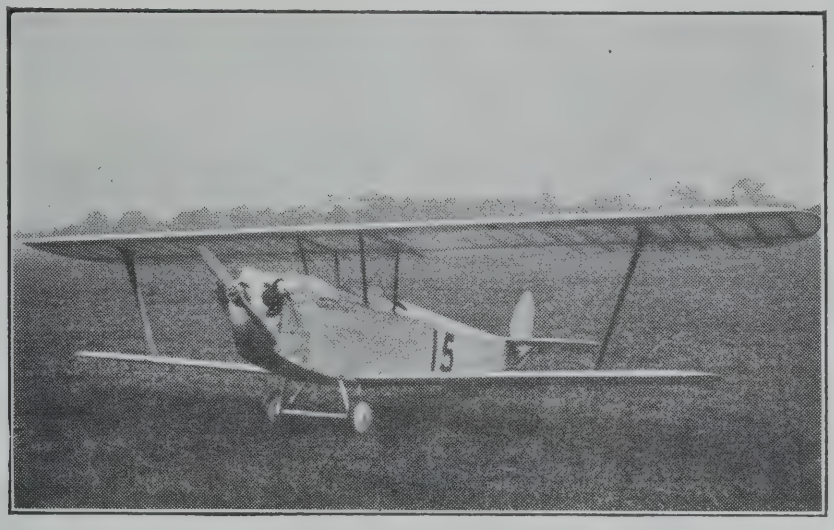
New Companies.

Air Express Co. Ltd.—Private Co. Registered July 21. Capital £10 in £1 shares. Objects: To carry on the business of designers, builders manufacturers, engineers, repairers, owners, cleaners, exporters an



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Beardmore (Paisley), Ltd., was Registered as a Private Co. on Aug. 17, with a nominal Capital of £250,000 in £1 shares. Objects: To adopt an agreement with Wm. Beardmore and Co. Ltd., and to carry on the business of manufacturers of and dealers in motor-cars, vehicles and boats, aero engines, aeroplanes, motor launches and motor conveyances of every description, and parts, fittings and accessories for the same; electricians, electrical and mechanical engineers, machinists, fitters, millwrights, founders, wire drawers, tube makers, saddlers, japanners, enamellers, electro-platers, etc.

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PERSONAL NOTICES.

Death.

JORDAN.—On Aug 20, near Guildford, as the result of a motor-car accident, William Lancelot Jordan, D.S.C., D.F.C., late R.N.A.S. and R.A.F.

[Mr. Jordan joined the R.N.A.S. early in the war and served with distinction in the land-going Naval squadrons, and was popularly credited with shooting down over seventy enemy aircraft, though, so far as one can remember, no pilot was officially credited with such a number.

After demobilisation he joined the Sopwith Aviation Co. Ltd. as test pilot. On the liquidation of this company he accepted a post as test pilot with the Mitsubishi Internal Combustion Co. Ltd., of Nagoya, Japan. In this position he conducted the first deck-landing experiments in the Japanese Navy, and with his extensive knowledge of naval requirements and his ability as a test pilot, which was considerably above the average, he contributed largely to the success of the Mitsubishi Co. as constructors of naval aircraft. He returned to England some twelve months ago.

His death was caused by his car skidding and turning over on the wet asphalt road on the Hogsback about a mile from Guildford. Both Mr. Jordan and his wife were seriously injured, and he died from his injuries in Guildford Hospital..—L. B.]

Marriages.

WHELAN—WREY.—On Aug. 12, at Brenchley Church, Kent, by the Right Rev. Bishop Beaven, Robert Darley Whelan, R.A.F., son of the Rev. P. S. Whelan and Mrs. Whelan, to Barbara Marion Celia, younger daughter of Sir Bourchier and Lady Wrey, of Southern Rhodesia.

Forthcoming Marriages.

BROOKE-POPHAM—HUGONIN.—The engagement is announced between Air Vice-Marshal Robert Brooke-Popham, C.B., C.M.G., D.S.O., A.F.C., Commandant of the Royal Air Force Staff College and Opal, younger daughter of Mr. and the late Mrs. Edgar Hugonin, and niece of Sir Granville Wheler, Bt., and Lady Wheler, of Ledston Hall, Yorkshire, and Otterden Place, Kent.

[Air Vice-Marshal Brooke-Popham commanded No. 3 Sqdn., R.A.F., at the outbreak of war in 1914. He handed over the squadron to Major John Salmond and became O. Chief to Sir David Henderson, and remained in charge of technical affairs till the Armistice. Later he was Director of Research at the Air Ministry. Later again, he was appointed to create and command the R.A.F. Staff College. In all his varied posts he has won the respect and the affection of all who served with him. On behalf of all one wishes him and his bride-to-be every good fortune.—C. G. G.]

ELLEN—GARDNER.—The marriage arranged between Flt. Lt. Cyril N. Ellen, D.F.C., R.A.F., son of the late Mr. William Ellen, of Seaham Harbour, and Mrs. Ellen, and Gladys Lily, eldest daughter of Mr. and Mrs. Gardner, of Highgate, will take place on Oct. 3, at St. James's, Muswell Hill.

TAYLOR—WEALE.—An engagement is announced between Mr. Joseph Carey Crabtree Taylor, late R.F.C. and R.A.F., only son of the late Joseph Crabtree Taylor and Mrs. Fraley, of Bathwick, Bath, and Violet Grace, third daughter of the late Mr. W. T. C. Weale and Mrs. Weale, of St. Helier's, Jersey, C.I. [Mr. Taylor will be remembered as a partner in the Berkshire Aviation Co. Ltd. and as a member of the Oxford University Arctic Expeditions.—C. G. G.]

Births.

CHARLTON.—On Friday, Aug. 21, to J. S. and Lady June Charlton, at 8, Seaford Court, Great Portland Street—a son.

HUNTER.—On Aug. 15, at Ismaillia, Egypt, to Moira (*née* Tuite), wife of Flg. Off. H. J. Hunter, R.A.F.—a daughter.

PRESTON.—On Aug. 15, at Beckenham, Maude (*née* Stainforth), the wife of W. F. A. Preston, R.A. and R.A.F.—a son.

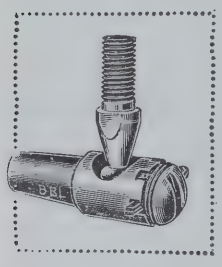
RIDDLE.—On Aug. 9, at Windy Ridge, Lee-on-Solent, Hants, to Doris (*née* Wickham), wife of Flt. Lt. C. B. Riddle, R.A.F.—a son.

SHERREN.—On Aug. 17, at The Beeches, Croutel Road, Felixstowe, to Joyce (*née* Tilden-Smith), wife of Sq. Ldr. P. C. Sherren, M.C., R.A.F.—a son.

SLESSOR.—On Aug. 14, at Ettrick Cottage, Farnborough, the wife of Sq. Ldr. John Cotesworth Slessor, M.C., R.A.F.—a son.

WOODHEAD.—On Aug. 12, at Bank House, South Cave, E. Yorks., to Edith Milne, wife of Norman Hargreave Woodhead—a son.

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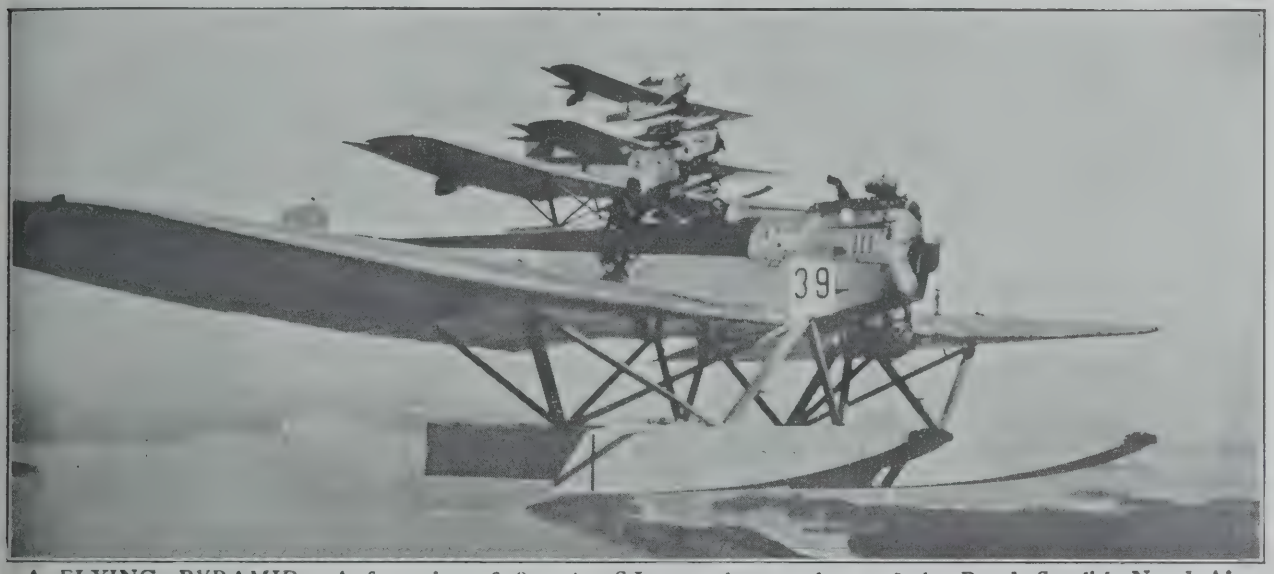
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ON FRANCE AND WORLD POLITICS.

Students of humanity recognise that in a general way all human mentality is divided into two distinct and almost opposing types, which for lack of a better definition are known as the masculine mind and the feminine mind. One would not dare to say which is the superior. In fact it is possible that neither is superior because one may achieve by guile what the other achieves by strength.

The distinction is to some extent unfair in that there are plenty of women who possess masculine minds and quite a fair proportion of men who possess feminine characteristics (probably in the original ancestral protoplasm (vide Poo-Bah in *The Mikado*, just in case anyone may imagine that one is about to become scientific) there was no distinction of sex, and, therefore, as man developed from, or with, the primæval monkey, individuals of either sex inherited characteristics of the other sex. But in the main any ordinary individual knows what is meant when reference is made to a feminine characteristic or masculine one.

What one means may perhaps be illustrated by a little incident which one witnessed not long ago during the "rush hour." A crowd of people were struggling to get into a 'bus when a fussy little man with sundry parcels in his hands tried to elbow his way through the crowd to the discomfort of various people. A strongish man behind him pinioned him firmly by the elbows, turned him round, pushed him out onto the vacant part of the pavement, and remarked as he did so, "Now then, don't behave like a woman."

In other words a woman can be ruthless and selfish and inconsiderate without having to pay the penalty for it that a man would have to pay. And mere man, recognising that woman is the physically weaker being, allows that she has a perfectly good right to take mean advantages.

National Characteristics.

Now among nations national characteristics exist on almost precisely similar sex lines. It is quite possible to generalise and say that the Nordic nations as a whole are distinctly masculine and the Mediterranean nations are feminine in their outlook and in their political methods. And the national policy and behaviour of nations is apt to become masculine or feminine according to the type of people which happens to govern the nation.

Of all European nations France always appears to be the most essentially feminine. Centuries ago, when France was governed by a Frankish and Norman, and therefore Nordic, aristocracy and was the greatest military Power in Europe, the nation's policy and general actions were distinctly masculine. But since the guidance of the country has fallen more and more into the hands of the middle and lower



ON THE AIR ROUTE.—A vertical photograph of Ostend, taken from a Handley Page. The three sword-like projections are what we call "breakwaters." The famous Kursaal can be seen on the curve of the sea front.

classes, the feminine element has become more dominant; because, of those social classes, those who are of Mediterranean origin are the more politically-minded. The big, fair Frankish and Norman farmers and agricultural workers take but little part in politics and leave such things to the town-dwellers who are preponderatingly of the little dark Mediterranean type, which is commonly and erroneously called Latin, though it might equally well be called Greek or Sicilian.

This essentially feminine inclination of French mentality, among the politically-minded classes at any rate, accounts for quite a number of funny things which happen in French politics.

For instance, it explains the rooted objection of the French nation to paying its war debts. A man, when he has borrowed money from a friend with his eyes wide open, will either pay it when he is able or will frankly avoid paying anything at all. But, unless he happens to have a large feminine factor in his composition, he will not start inventing reasons why he should only pay part of his debt and repudiate the rest.

This is precisely what France seems to be doing at the moment with M. Caillaux, the French Minister of Finance, who not so many years ago had to fly from France to escape trial for what in this country is known as High Treason, coming over to England offering to make us a payment of about ten millions per annum when we regard twenty millions as quite a small yearly instalment of what is due to us. Quite possibly the British Government, adopting that attitude of forbearance which the masculine mind is always ready to adopt towards the feminine mind, may accept the offer. But if it does then the feminine mind will have scored once again as it has done ever since Eve sold Adam the historic Apple.

Boulevard Gossip.

Incidentally the gossip of the Boulevards at the moment has it that French financiers hope to do more by guile than by business bargaining with this country. The gossips say, in effect, "England wants twenty millions a year. We offer ten millions a year. Between such sums the difference is so great that a trifle of half a million pounds sterling judiciously distributed in hard cash in the right quarters, would be well spent if it could produce the desired effect on the English Government."

Here again one sees the difference between the feminine intellect and the masculine intellect. One would dearly love to see the faces of our financial officials, especially Mr. Churchill's, when the idea dawned upon them that some affable Mediterranean was trying tactfully to work on them the sort of graft which brought Turkey into the War on the side of Germany in 1914, by putting a couple of million pounds into the pockets of the Turkish leaders.

A bright observer of international politics described the position of France rather neatly the other evening as being that of a demi-mondaine who having been maintained for a number of years by one individual (in this particular case by America, who has generously refrained from pressing France for money for her war debt) finds herself cast off and is now ready to make overtures to anybody who is disposed to be financially generous to her. Hence this recent affability to England after having dispensed among her hangers on, in the way of arming and equipping the armies and air forces of various comic Central European nations, the money which she originally secured in the form of war loans from the United States and from England.

On the face of it the foregoing remarks seem to have little enough to do with aviation. But in fact they bear directly on the subject because, now that the air forces of all nations are the first lines of offence and defence, anything which bears directly on the cause or the prevention of wars is also directly concerned with aviation. And International Finance has everything to do with wars, besides affecting directly the size and efficiency of the air forces of the nations concerned. Which of course is why France has been spending on building an enormous Air Force for herself, and in equipping the air services of the Central European nations, the money which she still owes to America and England. The idea behind this is that continual and very feminine hysterical fear of Germany from which France suffers.

Anti-German Hysteria.

The latest manifestation of this hysteria appeared recently in a French aviation paper which alleges that in a night Germany could call up thousands of fighting aeroplanes and equip an enormous air force. The paper in question says that Germany can maintain in Holland and in Switzerland and in Russia and in Scandinavia as many military aeroplanes as the French have in all their aviation camps. And it states that the Versailles Treaty of 1919 only hinders German aviation, and does not suppress it.

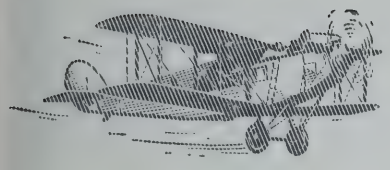
Further it says that German military aviation is to-day as dangerous as if the Treaty had not entailed any limitations. It adds that if Germany had a couple of thousand aeroplanes, as is supposed to be certain, stored by Fokker in Holland, by Dornier in Switzerland, and by the Bolsheviks in Russia, she would need less than a night for thousands of military aeroplanes to fly to the numerous air camps which exist in Germany.

From this the French paper deduces that the solution of the problem of German aviation no longer depends on the observance or neglect of the Nine Rules imposed on Germany by the Council of Ambassadors but on keeping a careful watch on all those who directly or indirectly build aeroplanes for Germany. And it says that although Germany is a country which has no right to have a military air service at home she can have one in neighbouring countries where she can maintain all the military aeroplanes she chooses to buy.

This of course is in fact the most abject nonsense. But because it has appeared in print, and because the story has been reproduced in print in the English language, it is bound



A SEA TERMINUS.—Southampton Docks photographed by the Surrey Flying Services. The new floating dock can be seen in the top left-hand corner and to the right of this is one of the big Cunarders.



"IT is very satisfactory to find that Mr. Fokker is using a British engine — the Napier 'Lion'—in all the latest air liners. He says it is the finest engine in the World to-day for commercial machines."

EVENING NEWS, 29.7.25



The Napier aero engine has proved itself, not only for commercial machines, but, as is evidenced by the preponderance of Napiers in Royal Air Force machines, for War type aeroplanes as well

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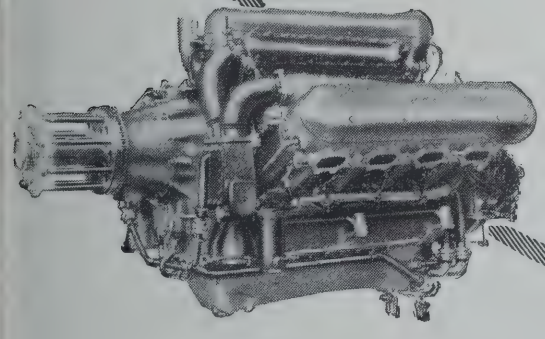
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The last three Aerial Derbys have been won by Napier-engined Gloster machines. In 1923 the average speed over a circular course of 200 miles, was 192.4 m.p.h.

to have a certain amount of effect in prejudicing still further the progress of German aviation and so of the progress of aviation all over the World.

German Aircraft!!

The fact is that Mr. Anthony Fokker has been building in Holland vast quantities of aeroplanes for practically every country in the World—including Soviet Russia. One knows that he has had difficulty in getting money paid by the Russian Government. And presumably, as stated in this paper a week or two ago, he has now very wisely made arrangements for his accounts to be paid by a German bank instead of by the Russians. That is probably the basis of the story that he is building machines for Germany.

Dornier is building aeroplanes in Switzerland and Italy because the French prevent him from building them in Germany. Rohrbach's designs are being built in Denmark and Scotland for the same reason. Caspar is building in Sweden also for the same reason. And an attempt is being made to build Junkers aircraft in Russia, though one gathers that it has had little success owing to the impossibility of keeping proper control in a Russian factory.

All these German machines are being built outside Germany simply because the predominance of the French in the Council of Ambassadors has prevented these various constructors from building in Germany and thus helping to re-establish German finance and the ultimate payment by Germany of war indemnities. There is about as much reason to label all these outside factories as part of a German scheme for war equipment as there would be for saying that the German soldiers of fortune who are serving in the French Foreign Legion in Syria and in Northern Africa, are there by order of the German Government so as to get into training for a new war with France.

Apart from that, the most ridiculous side of the French paper's hysteria is its complete neglect to notice that aeroplanes are no use without pilots and mechanics and workshop equipment and a complete staff organisation. If two thousand war machines were flown into Germany to-morrow they would be perfectly useless because nowhere are there properly equipped military aerodromes to house them.

No doubt Germany could find enough pilots to fly them. But at the lowest estimate 90 per cent. of these pilots would need two or three months' training before they were fit to take part in military operations. And even 1,000 aeroplanes would need at least 50,000 men on the ground to keep them and their fighting equipment in flying order. And 50,000 men require quite a lot of housing and clothing and feeding and general administration.

Staff Work.

One has the highest respect for German ability to organise and to do staff work. But one does not believe that if Germany were presented with a thousand first-class fighting aeroplanes to-morrow the German military authorities could produce an air force to man-handle those machines inside a year.

Which is precisely why one has always said that when the great Race War really begins our Royal Air Force will have to go to Germany to hold up the advance of the Eastern Barbarians until Germany herself can organise and train her own air force.

This cheerful neglect to consider the need for staff work is another symptom of the feminine element in French mentality. It is true that some women have the makings of first-class staff officers. But when a woman does possess organising ability it is generally evidence of the masculine element in her composition. And the lack of a true understanding of staff work is typically French and may be taken as one of that nation's feminine attributes.

During the War 1914-18 we used to hear a lot about the French Staff and the excellence of French staff work, but those who were on the inside know perfectly well that bad staff work was the cause of almost all the French failures. From G.Q.G. (which means Grand Quartier Général, or General Headquarters), down to Divisional Headquarters, where far the majority of the controlling officers were Nordics, French staff work was prettily done. But from the Divisions down through the Brigades and Regiments and Battalions French staff work was chaotic.

There were even times when the staff work of G.Q.G. itself was unable to tackle the problems presented to it and when the English staff had to be called in to save defeat. In fact one may even say that the English staff had to be called in to win the War quite apart from the fact that the British Army had saved the French from defeat for four years on end.

An Astounding Revelation.

A most amazing revelation, which confirms this statement, has recently been made in the Official History of the Canadian Forces in the Great War 1914-1919. Sir Andrew MacPhail, Chief of the Canadian Medical Service, whose facts cannot possibly be disputed, says:

> By a final act of vicarious abnegation the British commander in chief made himself subordinate in appearance to an allied general, so that the plan and purpose of his own original strategy might not be imperilled.

This statement is taken from a lengthy review of the book which appeared recently in *The Times Literary Supplement*. Both *The Times* newspaper and its *Literary Supplement* are completely detached and impartial in their view of international politics and so the statement may be accepted for what it is, a plain record of history which has hitherto not been brought to light for various reasons, although the fact has been known to what one may call the inner circle for a good many years.

What it means is simply that Sir Douglas Haig, as he then was, having laid down with his Staff a complete strategic scheme of operations to end the War, found that it was impossible to get the scheme accepted by the French unless he himself accepted what was apparently a subordinate position with Marshal Foch as Generalissimo of all the Allied Armies. Thus the truth is at last disclosed and the World at large may know that the War was won by the British General Staff.

The Verdun Claim.

The holding of Verdun was made possible in a somewhat similar way. Readers of this paper may remember that the French General Staff regarded the holding of Verdun as essential to the maintenance of the moral of the whole French Army. They believed that if Verdun fell the Germans would have a clear march to Paris. And the catch-phrase "*Passeront pas*" ("They shall not pass") became almost an article of faith to France.

But the task of preventing the Germans from passing Verdun depended on the supply of food and ammunition to the French Army which was defending Verdun. The German salient at St. Mihiel commanded the only railway which could supply Verdun so the Army in that area had to be supplied by road.

Wonderful stories were published of the endless stream of laden motor-lorries which went up to Verdun by one road and came back by another, the stream never ceasing day or night. And the English newspapers bubbled over with praise of French organisation. But very few people even to-day know that the whole scheme and the whole organisation of that endless stream was laid down and operated by three or four officers of the British "Q" Staff, who were borrowed by the French after their own attempts to supply the Army of Verdun had nearly broken down.

These and many minor instances of a similar nature go to show that one need not take too seriously any French statement which entails a proper understanding of staff work. Of course one does not expect journalists in any country to understand staff work and all that it connotes, and still less can one do so when the journalists happen to be French. The late Mark Twain struck something like a basic truth when he referred in "*The Innocents Abroad*" to "a furious state of French calm."

Franco-Feminine Illogic.

Another delightful example of the illogical Franco-feminine mind is provided by that famous French paper, the *Matin*, which has worked itself into a fine fury about the German aeroplane which landed in Belgium recently, as was amusingly related in The Aeroplane by Mr. Val Cronstedt. Readers will remember that Mr. Cronstedt and other passengers who had been booked to travel to Amsterdam by Imperial Airways were obliged to travel in a German machine because no English machine was serviceable. They were forced to land in Belgium by engine failure, and after being arrested were allowed to depart after having to hang about for several hours on a strip of windy Belgian coast.

The *Matin* now reports that the pilot was released when it was found that his papers were in order and that his aeroplane was confiscated by the Belgians but was afterwards handed back to its German owners in consequence of representations made to the Belgian Government by the British Air Minister. And the *Matin* says, plaintively,

> No steps have ever been taken by the British Government to induce the German Government to surrender the thirteen French aeroplanes that are unduly retained at Furth aerodrome.

These apparently are the various French aeroplanes which were brought down by engine failures during that period when the French were trying to operate an air line direct from Strasbourg to Prague in direct contravention of the Versailles Treaty, which admits that each country owns the air over its own territory. The French flew these machines across Germany without the permission of the German Government and then when they were let down by their engines and were quite properly confiscated by the Germans, the French papers started that wild story about the German "Death Ray" which was supposed to short-circuit the magnetos of engines. The story was evidently based on the idea which Mr. Grindell Matthews tried to exploit in this country by means of sundry credulous newspapers.

The *Matin* apparently accuses the British Government of playing a double aerial game, in that it promised to support

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THE FAIREY "ATALANTA."

(4 Rolls-Royce "Condor" Engines.)

This is the largest seaplane in the service of the British Royal Air Force and may safely claim to be the largest successful seaplane in the world.

This machine has been designed to operate for long periods away from its base, therefore full sleeping accommodation is provided for the crew of six.

The span of the "ATALANTA" is 139 feet, and fully loaded it weighs almost 15 tons. It has a speed of 100 miles per hour.

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the signatories of the International Air Convention in their claims to fly over Germany and broke away from this promise in order to secure private advantages for British aeroplanes flying to India by way of Berlin, Vienna and Constantinople.

The *Matin* asks naïvely,

What is there to prevent France, Belgium, Jugo-Slavia and Roumania from applying to German aeroplanes which fly over their territory the same treatment which the German Government applies to the aeroplanes of those nations which fly over Germany, that is confiscation pure and simple without appeal?

As in the case of the gentleman in *Punch* who was asked in Court whether he had assaulted another person, "The answer is in the infirmary." The French aeroplanes in a more or less wrecked condition seem to be in the aerodrome at Furth, whereas the German aeroplanes as a rule do not suffer from forced landings. And anyhow German aeroplanes which fly across Jugo-Slavia, Austria and Roumania are flying across more or less friendly territory in which if they do come down they can get assistance to fly away again. It is at any rate certain that if any German aeroplane descended in France it would undoubtedly be confiscated.

But the *Matin* entirely misses the whole point of the argument. That German aeroplane which descended in Belgium was flying under contract with Imperial Airways Ltd. and was carrying passengers who would have been travelling on a machine belonging to Imperial Airways Ltd. if our Million Pound Monopoly Company had had any aeroplanes in which they could fly on that particular day. Therefore there was every reason why the British Air Ministry, which as a Government department is directly interested in the firm which is supported by our Government subsidy, should concern itself with inducing the Belgians to return the machine to its owners. And, anyhow, most Belgians are friendly towards individual Germans as may be judged by the number of German business men in Belgium. On the other hand, nobody in this country has been in the very least interested in the French attempts to fly from Strasbourg to Prague.

Apart from that there has always been rather a feeling among the aviation people in this country that the French were taking a mean advantage of the Germans by deliberately flying over German territory machines which were superior to those which the Germans themselves were allowed to fly under the famous Nine Points Regulation when Germany was not allowed an air force to prevent such machines from being flown in German air. Consequently, so far from there being any sympathy with the French over the detention of their machines at Furth, the inclination here has rather been to look on the whole thing as a joke against the French because they have tried to be a little too clever and failed.

A Little too Clever.

Another instance in which the French have tried to be clever and failed seems to be in their handling of Syria. Long before the War the French had quite a considerable commercial interest in Syria, but the French had nothing whatever to do with the fighting in Syria during the War 1914-18. It was the British Army under General Allenby which actually occupied Syria. And it was the capture of Damascus which eventually induced Turkey, the first of Germany's allies which let her down, to sue for peace. Therefore it seems all the more peculiar that the Peace Conference at Versailles should hand over Syria to the French.

The recent news from Syria makes fairly plain the fact, which has been known for a considerable time to those on the spot, that the French occupation of Syria under that much-discussed officer, General Sarrail, who commanded at Salonique during the War 1914-18, has not been a conspicuous success. And even the French themselves, judging by the questions which have been asked in the Chamber of Deputies, do not seem particularly pleased with the state of affairs.

Therefore there is no need to be surprised by the rumour, for which one is indebted to that interesting paper, *The Times of Mesopotamia*, to the effect that according to a story from Baghdad the French Government is contemplating the handing over of the administration in Syria to the British Government in part payment of war debts.

The Times of Mesopotamia points out that there is a very erroneous but widespread belief that we hold Palestine and Iraq as a grant from the League of Nations, and it says:

Nothing in fact is further from the truth. It was not the League which granted certain rights to the Allies, but the Allies to the League These mandated territories were won by the shedding of much British blood and were divided up by the victors at the Peace Conference. All that the Allies promised to do was to administer these lands in accordance with certain principles and ideals laid down by the League of Nations, and to report progress periodically to the League The administration would be no different if the League of Nations did not exist Talk, therefore, of the League's power to intervene, if, for instance, the Baghdad rumour were true, would be rather futile. To alter the status of a mandated territory is the right of the mandatory Power in which is vested the territory's sovereignty. Actually to give life to the rumour would, of course, be a welcome act. France is heavily embroiled in Morocco, and we feel certain that in many French quarters a withdrawal from the Middle East would be gladly hailed. As for Britain it would be merely an extension of her sphere of influence accompanied by several compensatory conditions, foremost among which would be the fact that between India and Egypt there would then be an "All-Red" route.

On various occasions in this paper one has pointed out that probably the best air route to India would be by flying boat along the Mediterranean to Beirut in Syria, and thence by way of Damascus to Baghdad, thus cutting out the detour to Egypt and up again through Palestine. On the whole, therefore, we might be all the better for having Syria on our hands. At any rate commercially it would be more profitable than Palestine, and certainly the Syrians like our people better than they like the French.

If the French had a good sound commercial sense they might see that it would pay them to cut their losses and let us run the country in conjunction with Iraq and Palestine seeing that the three areas are so closely interconnected. But one doubts whether the feminine element in the French national character will be able to recognise the soundness of such policy.

That same feminine tenacity which enabled the French Army to hang on through the worst periods of the War 1914-18 in spite of bad staff work and poor generalship, barring a few exceptional individuals, and in spite of the continual cries of "We are betrayed!" from the Back of the Front, as it used to be called, may very well induce the French to hang on in Syria when there is no useful object to be attained by doing so. The inclination to hang onto something that you do not really want is a very common form of feminine selfishness.

At any rate it is to be hoped that the French will do something about Syria, for the administration of Palestine and Iraq can only be made more difficult by having on the Northern Frontiers of those countries an area which is in a seething state of discontent. There is little enough fear of the Turks becoming really aggressive on a large scale. But in view of the next war and the possibility of the Turks being hostile, and allying themselves with their racial relatives the Russians our air route to India would be very much more secure if Syria were under our administration.—C. G. G.

"THERE ARE SECRETS THAT WE CHERISH."

The Supermarine float monoplane with a direct-drive Napier engine, which has been designed and built for the Schneider Cup Race, was tested successfully at Southampton, on Wednesday last week, by Mr. Henri Biard. The machine behaved very well on the water and in the air.

The Gloster, with a similar engine, has been tested on the water by Mr. Hubert Broad, at Felixstowe. On Sunday Mr. Broad took it into the air and made a flight of 15 minutes during which the machine handled very well.

It is stated by the Press Association, that Mr. Bert Hinkler has been chosen as spare pilot.

All the arrangements for the race are being carried out in most appalling secrecy. A Schneider Cup Committee has been formed in great secrecy, and it expresses wishes as to what may and what may not be said in the Press about the machines. But so secret is the Committee that it even keeps its existence and its wishes secret and so it can hardly blame anyone if its secret wishes are not respected. But it is secretly very annoyed about what has been said already, and the Air Ministry is now issuing secret documents on the secret committee's secret behalf.—G. D.

THE R.A.F. TO THE RESCUE.

The Baghdad correspondent of *The Times*, in a message dated Aug. 28, states:—

Thanks to the assistance of the Royal Air Force, the overland mail left Baghdad to-day in two Vickers Vernon biplanes, and will arrive in Cairo to-morrow in ample time for the P. and O. connection.

The incoming mails will leave Damascus to-morrow, and are expected in Baghdad on Sunday. A Nairn passenger convoy left Baghdad this afternoon, and will be met about 100 miles from Damascus by a detachment of French armoured cars, which will escort the convoy through the danger area. The news from Syria is somewhat contradictory, and it is difficult to gauge the extent of the tribal upheaval in the neighbourhood of Damascus, but the Nairn Company hopes to run its convoys as usual next week.

Owing to an attack on a Nairn convoy by raiders on Aug. 26, the overland mail service has been temporarily suspended.

TOTEM TOMTOM!

The *Times* of Dec. 13 states:—

Serjeant R. Andrews, of Woking, who accompanied *MacLaren on the world flight, has been presented with the Chinese diploma, third class, from the Chinese Air Ministry; a handsome silver rose bowl and a picture from the Air Department of Tokyo, also the Japanese Flying Cross; and a totem pole from the Prince Rupert citizens, to mark his arrival in Canada after attempting the flight.

[* Squadron Leader.—ED., AEROPLANE.]

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THE ROYAL AIR FORCE.

The London Gazette.

Aug. 25.

General Duties Branch.—The following are granted perm. comns. in the ranks stated (Aug. 26) :—Flt. Lts.—I. M. Rodney (Capt., Dorset Regt.), W. R. B. Annesley. Flg. Off.—E. C. Barlow.

Plt. Off. J. H. Caulfeild is promoted to rank of Flg. Off. (Aug. 10).

Wing Cdr. J. R. W. Smyth-Pigot, D.S.O., is restored to full pay from half pay (Aug. 25).

The following are placed on half-pay, Scale B :—Sq. Ldr. C. J. Mackay, M.C., D.F.C., from Aug. 23 to Sept. 13, inclusive; Flt. Lt. E. R. Whitehouse (Sept. 5).

Flg. Off. J. Spooner, M.M., is transferred to the Reserve Class A (Aug. 27).

The following are placed on the retired list at their own request :—Air Commodore R. B. Gordon, C.B., C.M.G., D.S.O. (Aug. 26); Flt. Lt. E. R. C. Scholefield, A.F.C., D.C.M. (Aug. 28).

The s.s. comns. of the following Pilot Officers on probation are terminated on cessation of duty :—T. D. Egan, C. D. Shearing, D. R. Way (Aug. 22); W. C. Barnsley (Aug. 26).

The following resign their s.s. comns. :—Flg. Off. H. C. Davies (Lt., A. and S.H., retd.), (Aug. 26); Plt. Off. on probation C. V. Fevez (Aug. 22).

Stores Branch :—Flt. Lt. H. V. Robbins (Lt., Border Regt.), is transferred to the Stores Branch on probation (Aug. 1).

Accountant Branch :—Flt. Lt. F. M. Gingold, M.B.E., relinquishes his s.s. comn. on account of ill-health (Aug. 26).

Reserve of Air Force Officers :—Flg. Off. S. Hampton resigns his comn. (July 15); Flg. Off. Lord E. A. Grosvenor resigns his commission on appoint to a commission in the Auxiliary Air Force (Aug. 1); Flg. Off. G. R. B. Smyth is transferred from Class A to Class C (Aug. 25); Plt. Off. A. H. A. C. Cranmer is confirmed in rank (Aug. 24).

Auxiliary Air Force.—General Duties Branch :—The following to be Sq. Ldrs.—No. 601 (County of London) Sqdn.—Capt. Lord E. A. Grosvenor to command the Sqdn. (Aug. 1); No. 603 (City of Edinburgh Sqdn.—Major J. McKelvie, A.F.C., to command the Sqdn. (Aug. 1).

Appointments.

Week ending Aug. 31.

General Duties Branch :—Wing Commanders R. G. D. Small, to Station H.Q., Duxford, to command, 22/9. J. R. W. Smyth-Pigott, D.S.O., to Air Ministry, for duty as an "Attached Officer," 25/8. E. L. Tomkinson, D.S.O., A.F.C., to No. 10 Group, H.Q., Lee-on-Solent, for Air Staff duties, 10/9. P. Babington, M.C., A.F.C., to No. 5 F.T.S., Sealand, pending taking over command, 6/10.

Squadron Leaders L. T. N. Gould, M.C., to No. 99 Sqdn., Bircham Newton, 4/9. H. A. Michell, O.B.E., to R.A.F. Depot, on transfer to Home Estab., 10/8. W. H. L. O'Neill, M.C., to No. 24 Sqdn., Kenley, 27/8. F. P. Don, to R.A.F. Depot, on transfer to Home Estab., 1/9. W. A. Coryton, M.V.O., D.F.C., to School of Army Co-operation, Old Sarum, instead of to No. 24 Sqdn., 26/8 R. Halley, D.F.C., A.F.C., to R.A.F. Cadet College, Cranwell, 7/9. G. D. Nelson, D.S.C., A.F.C., to H.Q., Inland Area, 1/9.

Flight Lieutenants F. O. Soden, D.F.C., to No. 24 Sqdn., Kenley, instead of to Inland Area Communication Flight, 19/8. C. J. Brockbank, M.B.E., to Station Commandant, Basrah, 1/8. C. R. Keary, to H.Q., Special Reserve and Auxiliary Air Force, 24/8.

Flying Officers H. Nelson, to Air Ministry, 1/9. L. E. Maynard, to No. 25 Sqdn., Hawkinge, 7/9.

Pilot Officers L. A. Egglesfield and H. Walker, to No. 208 Sqdn., Egypt, 6/8. A. P. Wayte, to No. 4 F.T.S., Egypt, 21/8.

Medical Branch :—Flying Officers F. B. C. Crawford, M.B., and H. G. Maguire, to Research Laboratory and M.O.S. of I., on appointment to S.S.Coms. for short course, 28/5. J. McM. Wilder, to Research Laboratory and M.O.S. of I., on appointment to S.S. Com., for short course, 24/8.

Stores Branch :—Flying Officers H. J. Bamber, to School of Naval Co-operation, Lee-on-Solent, 1/9. R. W. Stewart, to R.A.F. Depot

The R.A.F. Cadet College.

The Air Ministry announces that the following Flight Cadets successfully completed, on July 29, 1925, their course of training at the Royal Air Force (Cadet) College. The names are arranged in alphabetical order :—

J. G. D. Armour (Winner of R.M. Groves Memorial Prize), C. H. G. Bremridge, L. W. Cannon, T. H. Carr, G. P. Chamberlain, B. A. C. Danbury, J. Eaton, A. D. Gillmore, A. V. Hammond, J. A. P. Harrisson, E. G. Hordern, J. R. Jones, J. D. A. Keary, R. Kellett, W. M. C. Kennedy, B. W. Knox, G. E. G. Lywood, F. M. V. May, T. N. McEvoy (Winner of Sword of Honour), H. L. Patch, F. Priestman, H. H. V. Tristem, R. C. Wilson, T. E. Worsley.

The Abdy Gerrard Fellowes Memorial Prize was won by Flight-Cadet R. Costa.

A Fatal Accident.

The Air Ministry regrets to announce that as a result of a collision in the air at Hinxton, Cambridge, between two Siskin machines of No. 111 Squadron, Duxford, on Aug. 28, Flg. Off. Harry Butlin, the pilot of one machine, and his passenger, Plt. Off. Dermot De Robeck, were killed. Plt. Off. Hugh Peck, the pilot and sole occupant of the other machine, was also killed.

No. 58 Squadron, R.A.F.

The annual dinner of No. 58 Sqdn., R.A.F., will be held this year at the Savoy Hotel, on Saturday, Oct. 10. It is hoped to make arrangements for members to introduce feminine guests at a small extra charge as from the close of the dinner, to enable them to take advantage of the dance-bands for the rest of the evening. [Thus inverting the custom of the W.R.A.F.—Ed.]

Will all past and present members, who have not already been notified of this, kindly forward their addresses to the Hon. Secretary—C. H. Brewer, 27, Belgrave Road, Bristol—who will forward further particulars as soon as they are issued.

Valedictory.

The retirement of Air Commodore Robert Gordon, at his own request, deprives the R.A.F. of an officer who has done valuable work, besides being one of our earliest Service aviators.

Robert Gordon joined the R.N.A.S. at Eastchurch, as a Captain of Marines in 1913, or thereabouts, and became a very skilful pilot. He flew the Navy's famous Bréguêt biplane, an operation which had all the effects of intensive physical training, and afterwards did much seaplane work.

During the War 1914-18 he did continuous good service, but his chief claim to distinction was his campaign against the Mad Mullah in Somaliland, in 1919, when, with Wing Cdr. Bowhill as chief-of-staff, he abolished in six weeks an enemy who had defied the British Navy and Army for fourteen years. Incidentally, Group Captain Gordon (as he was) then acquired the historical distinction of being the first Air Force officer to command a combined force of the Navy, Army and Air Force.

His retirement is a loss to the R.A.F., and all those who have served with him will wish him every success in whatever future career he may adopt.—C. G. G.

THE RHYMES OF RUFUS RUDERBAR.

THE DOLEFUL LAY OF A P.S.A.

[Editorial Note :—The mystic letters P.S.A. do not, as might be imagined, indicate the existence in the R.A.F. of a chapter or lodge of the Pleasant Sunday Afternoons Association. Their function is to show that the officer after whose name they appear in the Air Force List has passed through the Staff College at Andover. They correspond to *"p.s.c."* in the Army List. The letters *p.s.c.* also appear after the names of Naval officers who have been to Greenwich, but it is difficult to understand why.—Ed.]

In days gone by a student, I;
My problems ranged afar—
From things that we should like to see
To matters as they are.

My brain was tried with problems wide :—
"Should sailors own the air?"
"Is gas too vile?" "Are tanks worth while?"
"Is bombing towns quite fair?"

As Lord of Air forth did I fare,
Or Maréchal of France;
Or C.-in-C. of the Greek Navee
I met whate'er might chance.

A hostile fleet met swift defeat;
I watched the leaders sink;
With eager zest I sank the rest
'Mid gouts of coloured ink.

A company was naught to me,
I dealt in Army Corps;
West, south and north I hurled them forth
To win me bloody wars.

My aircraft rose to grapple foes
On bombing London bent;
In flames and fire they bit the mire
As they crossed over Kent.

Thus Victory did follow me
Where'er my standard rose.
(A pot of ink can slay or sink
A quantity of foes.)

My rank did change, my nation range
From Esquimaux to Turk;
Until one day a *p.s.a.*
As finish crowned my work.

And thus equipped I gaily tripped
To see what I could do
To cause to come millennium
At This-or-That H.Q.

(The Doleful Lay continued in a Minor Key.)

I was to try to justify
The mystic letters three;
The lessons learned within me burned
In efforts to be free.

But now I think and spend my ink
On forwarding for ac-
-tion letters trite, such as if White
Should 'tend a course or Black.

The problems wide which erstwhile tried
My skill of pen and brain
Are very rare; I would I were
A student once again.

Eheu fugaces!

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THE BEST AERO ENGINE IN THE WORLD

RELIABILITY

Some Successful Flights made with Rolls-Royce Engines:

Across the Atlantic	**1,890 miles**
England to Warsaw	1,050 miles
England to Finland	1,100 miles
England to Constantinople	2,160 miles
England to Sweden (and back)	2,450 miles
England to South Africa	6,281 miles
England to Australia	11,500 miles

These flights were accomplished without any change of engines en route

"The Britannia Trophy, presented by the Royal Aero Club for the best performance in the year, has been awarded for the year 1924 to Wing-Commander Goble and Flight-Lieutenant McIntyre for their flight round Australia in a Rolls-Royce-Fairey."

"Daily Telegraph," March 26th, 1925

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THE ANNUAL REPORT OF THE AERONAUTICAL RESEARCH COMMITTEE.

The Report of the Aeronautical Research Committee for the year ending Mar. 31, 1925, which has just been published, is a document of considerable interest. Naturally the formal reports of this character are somewhat alike, somewhat inclined to dullness, but as a general survey of the work of the Committee they serve to show much more clearly the general attitude of the Committee as a whole towards the work with which they are charged, than do the detailed technical reports issued under the same auspices.

The general impression which is given on this point is that the Committee is becoming more human and its work of greater practical value with advancing years. This is a natural and expectable phenomenon—all things considered. It was inevitable that during the past few years the practical applications of aerodynamics by the engineer should have outpaced the development of aerodynamic theory, and that much of the scientific investigation work undertaken in that period should have had little obvious bearing on practical aeronautics.

Now that aerodynamic theory is, so to speak, finding its legs, and is becoming less and less speculative, research work is becoming more and more of direct value to the engineer.

A Reconstitution.

The present report deals with the work of the fifth year of the Aeronautical Research Committee—which superseded the National Advisory Committee for Aeronautics in 1920, and marks the end of a period in its existence. For simultaneously with the reorganisation of the Department of Supply and Research at the Air Ministry, the Air Council notified the Committee of a change in the terms of Reference under which the Committee works.

It will be remembered that the Directorate of Research which previously handled all experimental and scientific work at the Air Ministry has been divided into two sections, one dealing with Technical Development, the other with Scientific Research. Under the original terms of Reference, the Committee were instructed to advise on scientific and technical questions relating to the construction and navigation of aircraft, now they are to advise on scientific problems relating to Aeronautics. In other words, whereas previously their scope corresponded with that of the Directorate of Research, now they are, nominally, at least, attached to the Directorate of Scientific Research.

And whereas previously the Committee had among its members representatives of the Society of British Aircraft Constructors, and the Royal Aeronautical Society, it has been decided that in future members shall be appointed solely in virtue of their scientific standing and not as representatives of definite interests.

That is to say that in form and constitution the Committee is to become a more purely scientific body than it has hitherto been, and is to have less direct connection with the practical engineering side of aeronautics. At first sight it may appear that this reorganisation is likely to cause a further divergence between the work of the Committee in the future, and the needs of the practical designer, but this should not prove to be the case. In the past, experiment for the practical purposes of the engineer, and research for the elucidation of scientific problems, have been in competition for the attention of the Committee and for the services of the various laboratories which are more or less under its control. As a result of divided attention, progress has been retarded.

With the more restricted scope of the Committee as now constituted, it is permissible to hope for the more rapid development of the science of aeronautics, together with less of that retardation of practical engineering development which in the past has resulted from the inevitable mutual misunderstanding between the engineer and the research worker.

As to the actual work of the year, the Committee express the opinion that substantial progress has been made in regard to the problems of control in the stalled condition, and in regard to the investigation of elasticity and fatigue.

Control at the Stall.

In regard to the first subject the Committee state that for the past few years they have been accumulating data and investigating the general problems of stalled flight, but that with the completion of the first flight experiments on the slot-and-aileron control, the research is now emerging from this pioneer stage. This particular case may be regarded as a very excellent illustration of the weakness of the Committee's previous position, and of the advantage which may be looked for in the future, as a result of the Committee's more restricted field of activities.

This accumulation of data, and investigation of general problems, is an essential part of the work of developing general aeronautical theory, and its value is not limited to its applicability to any one practical problem.

The slot-and-aileron control, however, is a particular practical device, suggested as a result of a particular set of experiments, which could have been developed, certainly to some considerable extent by the engineer, without waiting for the scientist to satisfy himself by the accumulation and analysis of data, that the device was likely to be of great value. Under the regime heretofore existing at the Directorate of Supply and Research, there has been a very great tendency to restrain the engineer from making practical experiments with particular devices, until such time as the Research Committee could give those devices their general blessing. And not only has the engineer thus been unduly delayed, but the Committee have been forced to depart from their orderly search after knowledge of general applicability, in order to investigate isolated sets of phenomena.

The investigation of the elasticity and fatigue of materials upon whose results the Committee make special comment, is, of course, a matter of the first importance to aeronautical engineers. The stage of collecting data in regard to fatigue problems has not yet however been passed, and the Committee remark that "there is still no clear understanding as to the exact bearing that each of the particular factors has on the phenomena observed."

Work of the Year.

Apart from control in stalled flight, the aerodynamic work of the past year has dealt with stability and control in normal flight, recovery from a developed spin, "scale-effect," the measurement of aeroplane performance, wing flutter—which has occurred recently in high-speed machines—the effect of body interference on airscrews, and a measurement of the pressure on airscrew blades. The attention of the Committee has been drawn to "a flying device employing a rotating windmill" (the La Cierva Anti-Giro), and the aerodynamics of a rotating cylinder, and both these subjects are to be given serious attention.

The William Froude tank has carried out experiments to ascertain the effect of moving the maximum beam of a seaplane to various fore and aft positions. These experiments suggest that the hull form of a flying boat might advantageously be modified by placing the maximum beam further forward, permitting the lightening of the tail, and permitting the weight which must be carried forward in many seaplanes to be reduced.

Wind-tunnel work on models of airships in connection with the new designs, both of Cardington and of the Airship Guarantee Company, is in progress. The special panel appointed to consider the Airworthiness of Airships, have completed their report which has recently been published.

Engine problems have received considerable attention. Steady progress is being made towards an understanding of the phenomena of detonation. The problem of increasing the power/weight ratio, particularly at high altitude, is receiving attention. Pending the development of super-charged engines, the Committee have formed a high opinion of the bi-fuel system, devised by the Bristol Co. (In this, an engine with an abnormally high compression ratio is run on alcohol during take-off and climb, and changes over to normal fuel when a sufficient height has been reached.)

The Need for Technical Officers.

In connection with accidents, the Committee call attention to the need (presumably in the R.A.F.) of officers with more technical knowledge, and to the desirability of all power-plant failures being diagnosed by competent persons, immediately they occur. The Air Ministry have referred two problems to the Accident Investigation Committee. One relates to the inability to stop a voluntarily-started spin, and the other to the occurrence of wing flutter in certain high-speed aircraft.

The Economics of Flight.

Certain problems of Commercial Aviation have received consideration. Problems of the economics of flight are being studied, and the question of determining the commercial h.p. rating of engines for civilian flying is to be taken in hand. Aero engines at present are rated at a power based on the conditions of the Air Ministry type test. This power is neither a maximum power nor a power at which they may safely be run continuously for long periods. The Committee state that Imperial Airways normally run their engines at 80 per cent. of the r.p.m. corresponding to their rated output, but that, in the absence of careful tests, it is not yet possible to state at what power or r.p.m. it would be most economical to run engines in commercial service.

As the results of experiments at Croydon and elsewhere, the Committee express the opinion that the problem of landing at an aerodrome under all conditions of bad visibility is near solution. Wireless direction will guide the pilot to the vicinity of the aerodrome, the Leader cable—which is developing satisfactorily—will give him his exact location and his height, and Neon Lights should be adequate in fog to allow of landing.

THE DE HAVILLAND "MOTH"

Criticised by

THE PILOT INSTRUCTORS OF THE LONDON AEROPLANE CLUB.



CAPTAIN F. G. M. SPARKS, Chief Instructor of the London Aeroplane Club.



Mr. G. T. WITCOMBE, Second Instructor of the London Aeroplane Club.

Captain Sparks writes:—

"Now the London Aeroplane Club has completed its first week's flying I am prompted to record the complete satisfaction the D.H. 'MOTHS' have given. I have flown some 25 hours during the week, and have found the 'MOTH' quite the most suitable type for instruction—already some of the members, considering the short time they have as yet spent in the air, show extraordinary promise. The engine installed by you—the 60 h.p. 'CIRRUS'—has run faultlessly and has inspired the greatest confidence in both instructors and pupils. Not the sightest adjustment has been necessary to aircraft or engine, and I am now confident that the 'MOTHS' will stand up to the particularly exacting service to which we shall submit them."

Mr. Witcombe writes;—

"Having completed a week's work of instructing on the 'MOTH,' in that time doing over 20 hours flying without trouble of any description, I feel that it must rank in the first line of training machines, and that for its size and power, and consequent low cost, it is certainly the best."

THE DE HAVILLAND AIRCRAFT COMPANY, LIMITED,

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THE DE HAVILLAND MOTH.

As has been mentioned in another connection, the writer was recently given an opportunity of handling the controls of a De Havilland Moth in the air. The performance was undertaken as a check test of the indications given by the Reid time reaction apparatus, concerning the quality of one's hands, and this side of the experiment is dealt with in connection with a discussion of this apparatus.

At the same time the flight provided a somewhat better opportunity for assessing the qualities of the Moth itself than had before been available, and justifies one in confirming the very excellent opinion that had previously been formed of the machine's all-round excellence.

The front (passenger or pupil) seat, is extraordinarily comfortable and roomy, and astonishingly free from draughts. On this particular flight the seat cushion was low enough to keep the top of one's head below the top of the wind screen. That position is really too low for instruction purposes, as the view forward is too much restricted, but for teaching purposes a higher cushion is normally provided. For passenger-carrying work the low-seat position is ideal.

The Cirrus engine runs extremely sweetly and with an astonishing freedom from vibration, and with the standard exhaust pipes is quite effectively silenced. The get-off and the initial climbing angle of the Moth is astonishingly good —it is much more impressive when one is in the machine than it looks from the ground, and even from the ground it looks remarkable.

In the air the Moth is quick and sensitive. The day on which this flight took place was exceedingly hot and stuffy with a fluky wind, which never blew twice from the same direction. Bumps were frequent and quite severe. Even under those conditions the Moth was by no means difficult to keep under reasonable control even to one of very limited experience and badly out of practice. Response to control movements of all kinds is immediate and definite, but whether the movement of the machine is provoked by control or by external disturbance, that movement is free from any trace of disconcerting abruptness.

The first impression after taking over the control was that one was about to make an awful hash of the attempt to fly. This impression was based on previous experience only of considerably heavier and more sluggish types, and would probably not affect pupils with no previous flying experience. Actually only a very short time was required to get the feel of the controls and to use them with reasonable delicacy.

As an elementary training machine the Moth ought to be extraordinarily satisfactory. It might be imagined that her quickness would render her too difficult for many pupils—but it is much more probable that this will prove to be a positive advantage. The quickness seems to be entirely dissociated from any unpleasant qualities and the pupil who stirs his stick too vigorously at first will only receive somewhat more unmistakable evidence of the fact than he would obtain on a more sluggish mount. Possibly he will take a little longer to hit off just the right touch for the Moth than he would require for other types, but if he ever learns to fly the Moth well he will at once be able to handle Avros and the like. The reverse will not necessarily be true.

And it may be said that there are many distinct off-sets to the quickness of the Moth, even if that were believed to be a drawback. The pupil's cockpit, as has already been mentioned, is comfortable, and the engine runs beautifully smoothly and quietly, and there is little or no draught. A pupil attempting to control an aeroplane for the first time is pretty certain to be feeling somewhat nervous, and any unnecessary noise, vibration or discomfort, must add to his nervousness and hamper him in giving his whole attention to the job in hand.

The relative freedom of the Moth from such distracting phenomena may well permit pupils to get the feel of the controls even more rapidly than they would do on a slower but noisier and less comfortable machine.

It is quite useless to teach people to fly a machine that is too slow or too insensitive, and particularly under present conditions, it is desirable that there should not be too many persons trained to just fly an easy machine passably. It is very much more desirable that the new Flying Clubs—if they turn out any pilots at all—should train a reasonable number who will make really good pilots than a larger number of mediocre or bad ones.

And although there is very little doubt that quite a poor pilot could be taught to fly the Moth with reasonable success, the fact that that pilot was not good would be made very obvious—at least to his instructor—by the inherent qualities of the machine itself.

NEW L.F.G. MACHINES.

The Stralsund Works of the Luft-Fahrzeug Gesellschaft, under the technical direction of their chief designer, Gotthold Batz, have been working since the spring of this year on the development of aircraft of all-metal structure, in which a high tensile non-corrosive steel known as "Krupp V.2a" is used for wing spars, engine mountings, and undercarriage, and a light alloy known as "Lantal" for other parts.

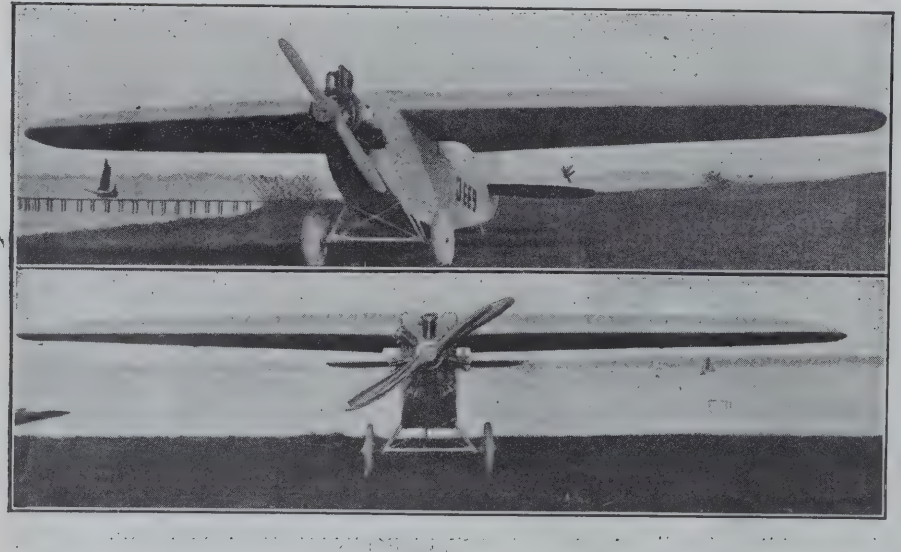
Lantal has characteristics similar to duralumin, but does not infringe the patents under which the better-known alloy is produced. It is manufactured by the Aluminiumwerke Lantawerk.

Three small monoplanes, known as the V.40, V.42, and V.44, have been produced on this structural scheme. These machines, some of them illustrated herewith, differ mainly in the use of different engines. The V.40 has a 75 h.p. Siemens Halske radial, the V.42 has a 6-cylinder 100 h.p. Mercedes, and the V.44 a 100 h.p. Bristol Lucifer. All are cantilever monoplanes of the high wing type, with steel wing spars and Lantal sheet coverings.

Some of these machines were entered for the Deutscher Rundflug, but fog at Stralsund, coupled with other difficulties, did not permit them to reach Berlin for the start. They have since been used for school and joy-ride purposes.

SPECIFICATIONS.

	V40	V42	V44
Span		11.4 m. (37 ft. 5 in.)	
Length		7.16 m. (23 ft. 6 in.)	
Height		2.35 m. (7 ft. 8 in.)	
Wing Area		18 m.² (194 sq. ft.)	
Weight Empty	535 kg. (1,176 lbs.)	565 kg. (1,243 lbs.)	535 kg. (1.176 lbs.
Weight Loaded	840 kg. (1,850 lbs.)	840 kg. (1,850 lbs.)	840 k.g. (1,850 lbs.
Engine	S.H. 75 h.p.	Mercedes 100 h.p.	Lucifer 100 h.p.
Wing Loading	46.7 kg./m.² (9.55 lbs./sq. ft.)	46.7 kg./m.² (9.55 lbs./sq. ft.)	46.7 kg./m.² (9.55 lbs./sq. ft.)
Power Loading	11.2 kg./h.p. (24.7 lbs. h.p.	8.4 k.g./h.p. (18.5 lbs./h.p.)	8.4 kg./h.p.) (18.5 lbs./h.p.)
Max. Speed	120 km./h. (75 m.p.h.)	150 km. h. (93 m.p.h.)	150 km./h. (93 m.p.h.)
Climb to 1,000 m. (3,280 ft.)	8 mins.	—	—



THE NEW L.F.G. MACHINES.—These two machines, V.44 (top) and V.40 (bottom), are of all-metal construction, employing a German high-tensile, non-corrosive steel for spars, and a new light alloy for less highly-stressed parts and for covering.

The V.44 is fitted with a Bristol Lucifer engine, the V.40 with a 75 h.p. Siemens Halske engine.

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The IDENTICAL **240 h.p. "PUMA"** engine which was fitted into the D.H.50 machine which won the

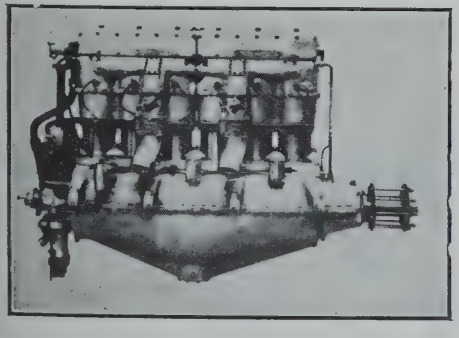
KING'S CUP AIR RACE, 1924,

(Pilot, Mr. A. J. Cobham), was used for the flight

LONDON to MOROCCO in ONE DAY and BACK

(Pilot, Mr. A. J. Cobham), and has recently been flown to **LISBON and BACK** (Pilot, Mr. H. H. Perry).

Further proof of the exceptional reliability of the Puma engines, has been afforded by the **17,000** mile flight, LONDON to RANGOON and BACK by Air Vice-Marshal Sir W. Sefton Brancker, Director of Civil Aviation (Pilot, Mr. A. J. Cobham). Extreme temperatures were experienced, but the engine ran faultlessly throughout, and is now on view at the Air Ministry Stand, in the Palace of Housing and Transport, British Empire Exhibition, Wembley.



240 h.p. SIDDELEY "PUMA" ENGINE.

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Two views of the Wackett Widgeon before it dived into the Ocean.

AUSTRALIAN AERO-SUBMARINING.

It has been known for some time that a boat seaplane has been under construction at the R.A.A.F. Experimental Station at Randwick, near Sydney. This boat, known as the Widgeon, was designed by Sq. Ldr. L. J. Wackett, D.F.C., A.F.C., B.Sc., A.F.R.Ae.S., R.A.A.F., and has been under construction for some considerable period.

The principal features of the Widgeon, which is fitted with a 240 h.p. Siddeley Puma engine, are a wooden hull, very much on the lines of the hulls of the Vickers Vikings, in which there is no plywood or glue, an entire absence of tanks, fittings, pipes or bracing in the hull, interchangeable planes, struts and ailerons, rolled-brass wing-ribs, and a 10-foot dinghy, which forms the cowling on the rear half of the boat hull.

Great were the expectations of this, the first all-Australian flying boat, and it was even announced in the Press that assuming the tests were satisfactory, the Widgeon would attempt the first flight from Australia to England.

The tests have now been carried out, and the following description of these "tests" have been supplied by a correspondent.

"On July 8, after a tremendous amount of 'Press,' the Widgeon, which had been residing at Botany Bay for some days, was supposed to fly. Gilt-edged invitations were issued and before the boat was launched, a perfectly good bottle of champagne was 'written off' on the anchor.

"There was a large crowd to witness the trials, 80 per cent. of which consisted of public and the other 20 per cent. the aeronautical community. Among the aeronautical community were noticed Group Capt. Williams, Sir Keith Smith, Capt. G. F. Hughes, President of the Australian Aero Club, Capt. E. J. Jones, Mr. R. W. Buchanan, Capt. Perceval, Mr. H. W. Ross, Major Scott, and many others.

"The Widgeon was then pushed off with Serjt. Becker and L-AC. Copp on board. After much handshaking and photography, Col. Brinsmead, the Controller of Civil Aviation, and Sq. Ldr. Wackett stepped on board. They then taxied out and tried hard to head her into the wind.

"There was a swell running and the wing-tips went under several times. After five minutes circling the engine was opened out and until she got on the steps the Widgeon caused a tremendous amount of spray. After about 300 yards the machine porpoised violently, and jumping out about 20 feet, went into the 'ditch' nose first. The Controller cut his hand trying to get out, but all were otherwise uninjured.

"In the first place the Widgeon was a very 'wet' boat, and secondly, she appeared to float nose down, as though the C.G. were too far forward. Chiefly, however, it appears that there was insufficient control in any direction.

"The areas of rudder, elevator, and ailerons are very small, and compared with the D.H.50, are as follows:—

Widgeon: Rudder 6.75 sq. ft., elevators 18 sq. ft., ailerons 39 sq. ft.

D.H.50: Rudder 11.75 sq. ft., elevators 21 sq. ft., ailerons 65 sq. ft.

"Further the D.H.50 has a greater speed and aspect ratio, also a greater effective length of fuselage, and only weighs 50 lbs. more than G-AEKB. (N.B.—Wrong lettering on Widgeon; G-AU . . . is the Australian registration.)

"Since the Air Ministry experts said the Widgeon was impossible, they are right for once.

"As only a few feet of the front were smashed in, Sq. Ldr. Wackett will repair the wreck and try again."

THE R 38 MEMORIAL PRIZE.

The Royal Aeronautical Society announces that the R.38 Memorial Prize for 1925 has been awarded to Mr. R. A. Frazer for his paper on "The Rigid Airship in Relation to Full-scale Experiments."

THE BUSK STUDENTSHIP IN AERONAUTICS.

The Trustees of this Studentship, founded in memory of Edward Teshmaker Busk, who lost his life in 1914 whilst flying an experimental aeroplane, have awarded the Studentship for the year 1925-6 to Mr. Stewart Scott Hall of the Imperial College of Science, London.

THE THIRD INTERNATIONAL AIR CONGRESS.

The Third International Air Congress will be held from the 6th to the 10th October, 1925, at Brussels, under the patronage of H.M. King Albert of Belgium and of the Belgian Government. Prince Leopold of Belgium will be the Honorary President, and the organising committee will be presided over by General Van Crombugge, Director-General of the Belgian Air Services.

Membership of the Congress is open to any citizen of a nation which is a member of the Fédération Aéronautique Internationale, or which is a signatory of the International Air Convention. The subscription for members is 75 Belgian francs. Members of the family of a member will be admitted as Associates at a fee of 25 francs.

The work of the Congress will be divided up into the following sections: (A) Legal, (B) Medical, (C) Aerial Navigation, (D) Scientific, (E) Technical, (F) Popularisation and Propaganda. Papers intended for consideration before any of these sections should be submitted to the Hon. Sec., the III Air Congress, 73, Avenue Louise, Brussels, not later than Sept. 1. They may be in either French or English.

The reading and discussion of papers will take place in the mornings, and the afternoons will be devoted to visits to aerodromes, works or laboratories. A number of social functions will also be arranged.

NEW TECHNICAL LITERATURE.

Aeronautical Research Committee, R. & M. No. 955.—The Measurement of Airflow round an Airscrew. By C. H. N. Lock and H. Bateman. Price 1s. net.

R. & M. No. 956.—The Airflow round a Body as Affecting Airscrew Performance. By C. H. N. Lock, H. Bateman and H. C. H. Townend. Price 1s. 3d. net.

R. & M. No. 963.—Notes on Stalled Flying. By Sq. Ldr. R. M. Hill and H. L. Stevens. Price 6d. net.

R. & M. No. 964.—The Control of a Stalled Aeroplane as Affected by the Use of Differential Ailerons. By H. L. Stevens. Price 6d. net.

R. & M. No. 965.—Pitching and Yawing Moments with Sideslip on a Model Aeroplane with Zero Stagger. By F. B. Bradfield. Price 1s. net.

R. & M. No. 968.—Full Scale Tests of a New Slot-and-Aileron Lateral Control. By H. L. Stevens. Price 3d. net.

R. & M. No. 969.—A Note on the Katzmayr Effect, that is, the Effect on the Characteristics of an Aerofoil produced by an Oscillating Airstream. By W. L. Cowley. Price 6d. net.

R. & M. No. 970.—Report of the Airworthiness of Airships Panel. Price 9d. net.

R. & M. No. 971.—An Experimental Investigation into the Properties of Certain Framed Structures having Redundant Bracing Members. By A. J. Sutton Pippard and G. H. W. Clifford. Price 3d. net.

R. & M. No. 972.—Full Scale Tests of a Bristol Fighter with Increased Rudder Control. By H. L. Stevens. Price 3d. net.

The Institution of Aeronautical Engineers, Minutes of Proceedings No. 15.—Contents: A Few Experiments with Shock-Absorbing Hulls for Flying Boats (Lt. N. A. Olechnovitch); The Position of the Airships in Aerial Transport (Lt.-Cdr. C. D. Burney); Lessons of 1924 (W. H. Sayers). Price 1s. 6d. net.

Minutes of Proceedings No. 16.—Contents: Reports of Seventh Annual Meeting; Extraordinary Meeting (June 10, 1925); Extraordinary Meeting (July 23, 1925). Price 1s. 6d. net.

The Journal of the Royal Aeronautical Society.—Contents: Notices; The Wilbur Wright Memorial Fund; Aluminium Alloys for Aeroplane Engines (Prof. F. C. Lea); Extension of the Activities of the Society. Price to non-members 2s. 6d.

Air Publication 1136.—The Elimination of Interference from Radio Receiving Apparatus.



16 of the WHIRLWIND engines are being used this year by Huff-Daland Dusters, Inc., in their dusting planes.



For flying close to the ground with heavy loads in small, tree-surrounded fields and with low operating costs, Huff-Daland Dusters, Inc., chose WHIRLWIND engines.

WRIGHT AIR-COOLED ENGINES DECREASE THE COST OF FLYING!

THROUGH four years of continual production with steadily improving manufacturing methods Wright 200 H.P. air-cooled engines have been brought to a point where the selling price is low as compared with *any type* of new gasoline engine and extremely favorable in the case of new *aviation* engines.

Nor is the reasonable first cost the only factor. The durability of the Whirlwind Engine has been sufficiently proved so that at least 300 hours can reasonably be anticipated without overhaul of any kind, and the facility with which inspection adjustments and minor repairs can be made without engine removal prevents the loss of valuable flying time.

The elimination of maintenance cost and danger liability of water radiation systems and the decrease in cost of spare parts due to the unit construction of the engine add still other factors to the decreased cost of flying.



Peru, Brazil, Cuba, Canada and other foreign governments are using Wright Whirlwind Engines. The commercial possibilities of these engines are exemplified in the recent installation of sixteen Whirlwind Engines in the planes of Huff-Daland Dusters, Inc., Georgia, who are taking important contracts for fruit tree and cotton boll weevil dusting. Impartial aeronautical and industrial engineers have decided that a considerable saving can be made by using air-cooled engines.

Bulletin No. 8-A containing a general description and technical information will be forwarded on request.

WRIGHT AERONAUTICAL CORPORATION
Paterson, New Jersey, U. S. A.

WRIGHT J-4, 200 H.P. WHIRLWIND AIR-COOLED ENGINES

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per day.—Monday, 21; Tuesday, 27; Wednesday, 31; Thursday, 22; Friday, 24; Saturday, 26; Sunday, 17.

IMPERIAL AIRWAYS LTD.

London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 68, passengers 431, freight 17 tons.

AIR UNION:

Paris—London: Machines 77, passengers 432, freight 11½ tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 19, passengers 98, freight 2 tons.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES:

DE HAVILAND HIRE:

Machines 2, passengers 2.

AERO TRANSPORT A.B.:

Berlin—London: Machines 2, passengers 5, freight £10,000,000 in bonds.

Total number of trips by British machines: 70, carrying 433 passengers. Foreign machines 98, carrying 535 passengers.

Comparative Figures.

For week ending Aug. 30:

Machines, 168; assengers, 968; Crews, 243; Total personnel, 1,211.

Corresponding week, 1924:

Machines, 137; Passengers, 669; Crews, 165; Total personnel, 834.

Corresponding week, 1923:

Machines, 121; Passengers, 578; Crews, 194; Total personnel, 772.

Corresponding week, 1922:

Machines, 159; Passengers, 506; Crews, 272; Total personnel, 778.

Corresponding week, 1921:

Machines, 103, Passengers, 427; Crews, 129; Total personnel, 556.

Corresponding week, 1920:

Machines, 104, Passengers, 219; Crews, 129; Total personnel, 348.

Croydon Notes.

Last week Imperial Airways carried 183 passengers, on the London-Paris service, and the Air Union carried 432. On all their services, Imperial Airways carried 431 passengers. One gathers that the present numerical strength of Imperial Airways is "according to plan," and is not, as is thought, due to short-sighted policy on the part of the Directorate. Rather is it a long-sighted policy.

When Imperial Airways Ltd. was formed, it was believed that its policy was the assistance of the progress of Civil Aviation. That, one is told, is an entirely erroneous idea and Imperial Airways is entirely a money-making concern, and nothing more. The contract with the Government is that in order to qualify for the subsidy they have to complete a million miles in a year. This is all planned out most accurately so that on about the last day of the financial year the millionth mile is achieved. And then, if as was the case last year, they run it too fine and are short of the million, they make excuses to the Air Ministry that a strike, or a pestilence, or a famine, held them up. The Air Ministry say, "Oh, poor Imperial Airways Ltd., of course, you poor dears, you couldn't cover your million miles, with those naughty pilots striking as they did. Here is your subsidy, for unto him that hath a nerve shall be given. Try and do better (for yourselves) next year."

You see how difficult it would be for the poor directors if they bought any new machines. If they find that they are covering too much mileage a machine can be taken off the service, and passengers can always be kept waiting. They are told that there are no machines available, and, of course, to use the one and only Mr. Herne's pet phrase, "You can't say fairer than that." But suppose they had a bunch of nice, new, D.H.54s sitting in the shed, it would be difficult to convince passengers that with £1,000,000 pounds of money, some of it possibly subscribed in the form of income tax by some of the waiting passengers, they could not afford to run an extra service, even though it was scheduled, as otherwise they would exceed their million miles per year.

And that is why Imperial Airways Ltd. is doing so badly and that is why the French are reaping a reward in the shape of passengers (and there are some queer shapes, too, to become personal). Imperial Airways Ltd. have sold to the French for a mess of pottage (or at any rate a mess), the birthright of British Civil Aviation, built up so well in the past by Aircraft Transport and Travel Ltd., Handley Page Transport Ltd., the Daimler Airway, and the Instone Air Line Ltd.

The chief event of the week was the arrival of the three-engined Junkers machine, as briefly stated last week, with £10,000,000 worth of bonds to be paid into the Exchequer. Mr. Linder was the pilot of the machine, which was much admired. Mr. Linder spent most of Wednesday in taking people up for joy-rides in the machine, and on Thursday he flew back to Berlin. He is expected at Croydon with another load of bonds on Wednesday or Thursday of this week.

One happened to be staying for the week-end in the neighbourhood of Tonbridge, and the French domination of the air was particularly noticeable here. There was a constant stream of Farman Goliaths passing in each direction, but one did not see one single Imperial Airways machine.

The Handley Page triple-Jaguar machine, which is named the Hampstead, will be flying in about a week. Its performance will be awaited with great interest.

By the way, the Air Ministry made a great song of what they were doing to make Civil Aviation safe, by stating that they had ordered a set of slotted wings to be fitted to a D.H.34.

Subsequently they discovered that they did not possess a D.H.34 and Imperial Airways could not spare one, and so the order for the slotted wings has lapsed. Anyhow, what would have been the use of one pair?

If the Air Ministry really wants to do something intelligent they should insist on the Savage-Bramson Anti-Stall gear being fitted to each and every civil machine on the air routes. It is about time we took advantage of *some* post-war aerodynamical knowledge on public passenger-carrying air lines.

—G. D.

Flying at Maidstone.

The Berkshire Aviation Tour has been at Maidstone for the week-end, with four Avros. On Sunday Mr. Parkinson took up 172, Mr. Beck 186, Mr. Kent 173, and Mr. Nelen 138. In the evening, Mr. Parkinson gave an exhibition flight lasting half an hour.

Six hundred and sixty-nine passengers in one day seems to be fairly useful, but this is no doubt due to the fact that the large numbers of Continental machines which pass over daily has inspired confidence into the populace. In addition to the passengers, over 4,000 people paid for admission to the flying ground.

The Tour will remain at Maidstone during the week, and next week-end, Mr. Holmes will "walk the wings." This is always a draw, and big crowds are expected.

Torrington.

On Wednesday, Aug. 19, Mr. J. D. Parkinson, of the Berkshire Aviation Tour, attended a fête at Torrington, N. Devon, and carried 236 people in an Avro. They were taken two at a time, and not all together, as otherwise the machine would have been too crowded.

The Southern Light Aeroplane Club.

The following letter has been received:—

Sir,—The above Club is being formed to stimulate and increase the interest now being taken in light 'plane flying in the Southern Counties. Ladies and gentlemen now joining will be charged a nominal fee of £1 1s. for the remainder of 1925, the annual subscription thereafter being £1 1s., and for new members an entrance fee of £1 1s. Instruction in flying will be given by a well-known pilot.

Applications for membership, accompanied by crossed cheques or postal orders, covering subscription, and made payable to the Southern Light 'Plane Club, may be sent to the Hon. Sec.

(Signed) F. J. DROVER,
(Eng. Captain, R.N., Hon. Sec.).

Wellington Road, Portslade.

[This letter is published as received. One has no knowledge of the Club or of its promoters.—C. G. G.]

A Two-Seater for Sale.

Many people have been inquiring at this office where they can get a two-seater cheap, so that it may interest them to know that Mr. R. L. Preston wishes to sell his B.E.2E (90 h.p. R.A.F. I.A). This machine has been recently overhauled and repainted, and is in excellent condition. It is fitted with dual control and would make a good machine for a private owner. The price of the B.E.2E complete with spares is £155 for quick sale. The machine can be seen by appointment with Mr. Preston.

Mr. Preston is now acquiring a Boulton and Paul P9, which should give a good account of itself in future races.

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CYRANO DE BERGERAC.

About once a year the British Broadcasting Company regularly broadcast something to which it is worth while to listen. This annual event happened this year last Thursday, when Lt.-Col. Robert Loraine, supported by a splendid company, was heard in the closing scene of Cyrano de Bergerac. The whole excerpt was done with that air of "perfect perfection" which is associated with all Colonel Loraine's productions. The beautiful incidental music and Colonel Loraine's fine voice in the moving lines of the translation of Rostand's work were alone worth the ten-shilling licence. They helped to a large extent to minimise the effect of the rubbish otherwise nightly shot into the air by the B.B.C.

Colonel Loraine told one recently that he would revive Cyrano de Bergerac in London before Christmas of this year. Would it not be possible for him to stage it at His Majesty's Theatre, the home of so many productions that were worth while, but where at the moment the Co-Optimists hold sway? These are but a shadow of the original Co-Optimists, and are now merely a good sea-side pierrot troupe with a mediocre programme of songs, and in one's own opinion are occupying Tree's famous theatre to the exclusion of something more fitting. They would be quite all right at the Victoria Palace or a suburban empire, but let us have Cyrano at His Majesty's.—G.D.

SOME FORTHCOMING LONG-DISTANCE FLIGHTS.

A number of long-distance flights are in course of preparation in France.

The most fully advanced of these is a non-stop "raid" to take place this month, from Paris towards India. No place of landing is definitely laid down, the itinerary of the flight being via Vienna, Constantinople, Aleppo, Baghdad, Basra, and, if possible, Bushire, the total distance being governed by the petrol capacity of the machine used.

The pilots chosen for this flight are MM. Pitot and Pollon, and the machine is a S.E.C.M. bomber fitted with one 600 h.p. Renault engine. A machine of this type was exhibited at the Paris Salon last December. It is fitted with complete dual control, and the two pilots have been carrying out training at Villacoublay for some time.

Another long flight to take place late this year is one from Paris to Dakar, non-stop, on a Bréguet XIX, to be piloted by MM. Thierry and Coste.

For the Raymond Orteig Prize of 25,000 dollars for a flight from Paris to New York, there are at least four aspirants. MM. Coli and Tarascon are proposing to use a Potez machine, to be fitted with a 500 h.p. Jupiter engine. The Dewoitine Co. are developing a machine. And M. Louis Damblanc, who is well known for his theories on helicopters, has designed an *avion marin*, to be fitted with a 500 h.p. Salmson engine. This machine is a straighforward parasol monoplane, but its construction has not yet begun. A fourth machine, said to be due to one of the oldest French aeroplane designers, is only in the designing stage, and is said to be a thick-wing monoplane, to be driven by two engines in tandem.

Another flight, over an 8,000-km. circuit, to be covered in a particularly short time, is to be undertaken by one of the best-known of French military pilots. Other long flights are hinted at, but, like some of the above, the particulars available are scarce.

Finally, it is rumoured that Réne Fonck, one-time French Ace-of-Aces and now Member of Parliament or its French equivalent, accompanied by Capt. le Petit, is to attempt a non-stop flight from Paris to Cairo.

TWO NEW SEAPLANE RECORDS.

During May two officers of the French *Aéronautique Maritime* put up a number of good performances on a Farman F.60 (Goliath) seaplane fitted with two 400 h.p. Jupiter engines, two of which performances have been homologated as World's Records.

On May 10 Lieut. de Vaisseau Aubert reached a height of 2,874 m. (9,426 ft.) carrying a useful load of 2,000 kgs. This exceeded the previous records for machines carrying 1,500 kgs. and 2,000 kgs. useful load, by 744 m. (2,440 ft.) and 1,385 m. (4,542 ft.) respectively. On May 27 Lieut. de Vaisseau Paris, carrying a useful load of 1,500 kgs. reached a height of 3,555 m. (11,660 ft.), which beat the record put up by Lieut. de Vaisseau Aubert on May 10 by 681 m. (2,233 ft.) All these flights were made on a standard Service machine fitted with two perfectly standard 400 h.p. Gnôme-Rhône Jupiter engines.

FOKKERS FOR ROUMANIA.

Fifty Fokker D.XI single-seater scouts (300 h.p. Hispano-Suiza engines) ordered by the Roumanian Government, have been delivered at Constantia, where they will be passed through the final acceptance tests prior to their allotment to the Fighting Squadrons of the Roumanian Royal Flying Corps.

It seems a pity that this order should go to a foreign competitor, however friendly, when the British Trade had such a good footing in Roumania. One gathers that certain British machines had been ordered but that the order was cancelled.

Wakefield CASTROL Motor Oil

is almost inevitably the lubricant chosen for every achievement of speed, endurance, or reliability in the air, or on land or water.

The first aeroplane flight across the Atlantic—the Empire Air-Tour of Sir Sefton Brancker and Mr. Cobham—every Race at the 1925 Lympne Meeting—every World's Record made by a car on the track during 1924—every Motor-cycle Tourist Trophy Race this year—all stand to the credit of standard grades of Wakefield CASTROL.

There is a Wakefield CASTROL grade specially suited to your engine. Write for our Pocket Lubrication Index, which gives prices and indicates the CASTROL grade recommended.

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Investigation and research on our part have produced this compounded lubricant, which combines the merits of both vegetable and mineral oils, while eliminating their disadvantages. The Castor Oil in Wakefield CASTROL is responsible for the thick oil film which minimises wear under the worst conditions of heat and load; while the intimate mixture of high grade mineral oil eliminates any tendency to gum.

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SECOND. ARMSTRONG WHITWORTH (SISKIN IV).

Pilot: Sqn. Ldr. H. W. G. Jones, M.C.

THIRD. DE HAVILLAND (D.H. 37).

Pilot: Major H. Hemming, A.F.C.

CROYDON STAKES.

(523 miles).

FIRST. DE HAVILLAND (D.H. 51).

Pilot: Col. The Master of Sempill.

SECOND. DE HAVILLAND (D.H. 60).

Pilot: Alan J. Cobham.

THIRD. A. V. ROE (AVRO 504N).

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PARACHUTES FOR CANADA.

The Irving pack-type parachute has been adopted by the Canadian Royal Air Force, and the first batch are now being tested at the High River Air Station, after which they will be distributed to the various air stations throughout Canada. The new equipment will form a regular part of the flying kit to be used in the ordinary routine work of the R.C.A.F.

A NEW AUSTRALIAN AIR MAIL.

Reuter's Agency reports :—

Aerial mail services have begun between Melbourne and Hay and Melbourne and Broken Hill.—*Reuter.*

MAJOR GRANT'S MOVE.

His many friends in the Aircraft Industry will be interested to know that Major J. R. Grant, who has been for several years in charge of the workshops of the Aircraft Disposal Company, is now with the Stanton Ironworks Company of Nottingham. The value of Major Grant's services to British aeronautics has never been quite properly appreciated. For the matter of that a great many people do not appreciate how valuable the A.D.C. itself has been.

In the early days after the end of the War in 1918 when the French and Italians were flooding the World's markets with war-time aeroplanes, most of which were better suited to the scrap heap than to the air, British manufacturers were endeavouring to get enormously high prices for new aeroplanes of post-war designs, and naturally the smaller nations were unable to pay such prices. The A.D.C. having acquired all the surplus stock of the Royal Air Force proceeded to offer this stock for sale at prices which, though considerably above those of the French and Italians, were at any rate within the financial reach of the smaller nations.

But instead of selling them just as they were handed over by the R.A.F. every aeroplane was thoroughly overhauled in the department which was managed by Major Grant. The result was that buyers acquired reliable and reasonably efficient flying machines. Thus British aircraft acquired all over the world a reputation which has created an international goodwill for the whole British Aircraft Industry. The policy was the policy of Colonel Darby and the Directors of the A.D.C. but the quality of the work was due to Major Grant.

It is to be hoped that when a real boom in aviation does arrive Major Grant's ability and experience will again be available to the Aircraft Industry.—C. G. G.

PERSONAL NOTICES.

DEATHS.

BUTLIN.—On Aug. 28, at Hinxton, Cambridge, as the result o a collision in the air, Harry Butlin, Flg. Off., No. 111 Sqdn., R.A.F.

Mr. Butlin was gazetted to the R.A.F. as a Flying Officer, in August 1922, and was a qualified engineering officer. He was posted to No. F.T.S., Duxford, in April, 1923, and to No. 111 (Fighter) Sqdn., i June, 1925.

DE ROEBECK.—On Aug. 28, at Hinxton, Cambridge, as the resul of a collision in the air, Dermot de Roebeck, Plt. Off., R.A.F.

Mr. de Roebeck joined the R.A.F. with a short service commissio last March.

PECK.—On Aug. 28, at Hinxton, Cambridge, as the result of a col lision in the air, Hugh Peck, Plt. Off., R.A.F.

Mr. Peck joined the R.A.F. with a short service commission las March.

ENGAGEMENT.

SUTHERLAND—RUSH.—The engagement is announced between Flt Lt. Robert Bruce Sutherland, D.F.C., R.A.F., eldest son of Mr. Donal Sutherland, M.P., and Mrs. Sutherland, of Ingersoll, Ontario, and Mis Eileen de Mairis, only daughter of Mr. and Mrs. Charles Rush, o Bedford.

MARRIAGES.

BERTRAM—ELIOTT LOCKHART.—On Aug. 25, at Christchurch Lanark, by the Lord Bishop of Glasgow and Galloway, Ian Anstruthe Bertram, R.A.F., younger son of the late Major William Bertram, o Nisbet and Kersewell, and of Mrs. Bertram, to Dorothy Cecil, onl daughter of Colonel and Mrs. Eliott Lockhart, of Cleghorn, Lanark shire.

DAVY—STEWART.—The marriage of Flg. Off. R. M. Davy, elde son of the late Samuel H. M. Davy, and of Mrs. Austin Batty, o Sheffield, and Miss Dorothy Stewart, youngest daughter of the late Mr and Mrs. A. M. Stewart, Hotel Russell, W.C., took place quietly i London, on Aug. 27.

KENT—STIRLING.—On Aug. 25, at All Saints, Kenley, by the Re F. P. Read, M.A., Thomas John Kent (late R.A.F.), eldest son of th late Professor Kent, F.R.C.S., and Mrs. Kent, of Uptons, Framfield Sussex, to Agnes Maria Fairlie Stirling, eldest daughter of Mr. an Mrs. D. E. Sirling, of Highfield, Kenley, Surrey.

OVERTON—BROMAN.—On Aug. 26, at the Savoy Chapel, Sq. Ld R. S. Overton, M.R.C.S., R.A.F., of Sutton Lodge, Sutton, Surrey, t Justine Leontine ("Jean") Broman, of Oslo, Norway.

BIRTHS.

EDWARDS.—On Aug. 11, at the White House, Sundridge, near Seven oaks, to Eve, wife of Lt.-Col. Ivo E. Edwards, C.M.G., late R.A. an R.A.F.—a son.

GOULD.—On Aug. 27,at Greenlands, Caterham, Surrey, to Hélèn wife of Wing Cdr. C. Grenville Gould, R.A.F.—a son.

WILCOCK.—On June 25, at Mayfield, Crawley, Sussex, to Doris, wif of Flt. Lt. C. A. Wilcock, A.F.C., R.A.F.—a son.

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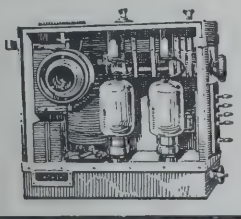
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"HOPE, FAITH, AND REMEMBRANCE OF GLORY."

(Swinburne.)



SIXTEEN YEARS AGO:—Mr. Henry Farman flying at the Great Reims Meeting in the last week of August 1909. During the meeting he put up a World's Record by making a non-stop flight of 112 miles. In the first week of September, immediately after the meeting, he was made a member of the Légion d'Honneur for his services to aviation. His hope and faith has been justified in these succeeding years.



The Marconi type A.D. 5 Aircraft Telephone apparatus is a short wave set which has been designed, after much research, to provide communication between small fighting machines without in any way impairing their efficiency. The trailing aerial has been eliminated, its place being taken by a fixed aerial built into the structure of the machine.

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ON THE LOSS OF THE SHENANDOAH.

The deepest sympathy of all those who have to do with ıe navigation of the air will go out to the United States Naval ir Service in the loss of the airship *Shenandoah* and the eaths of the officers and men who were killed in the wreck. he Air Services of all nations are continually at war. The onquest of the air still has to be achieved and those who e on duty in the air are entitled to all the honour of those ho are killed on active service.

Mishaps such as that which has befallen the *Shenandoah* re inevitable while a new method of transport or new type vehicle is being developed. Happily the majority of the ew of the ship escaped and from them something more may e learnt about the accident than is known at the moment nd those who are inclined to be unduly influenced by the cident will do well to remember that the number of officers id men killed in the *Shenandoah* is actually less than the umber of the American personnel killed in the *R.38*, when xteen American and twenty-eight British officers and men ere killed.

There are doubtless many people who will argue that this cident will set back severely the progress of airship building. ich a view is, one believes, entirely erroneous. The Nordic eoples have never had the habit of accepting as a defeat hat is only an unfortunate incident when viewed in the cor-ct light.

The wrecking of the *Shenandoah*, and, for the matter of at, of *R.38*, does no more to prove that airships are wrong principle than the recent epidemic of railway accidents in rance does to show that railways are wrong as a method transport. These railway accidents have certainly brought public notice a fact which has long been known to all ilwaymen, namely, that French railways are habitually ndled in a grossly incompetent manner. But the wreck of e *Shenandoah* does not bring to light anything which was ot known before.

The ship was commanded and navigated by thoroughly mpetent officers and had a crew of properly trained men. rtainly she was not as strong structurally as ships which ve been built more recently. But, as Captain W. H. ayers points out hereafter in discussing the accident from e engineering point of view, the probability is that no ship uld possibly be constructed to withstand the air disturbances hich wrecked the *Shenandoah*.

To get the accident in something like the right historical rspective one may compare it with the sinking of *H.M.S. obra*, one of our earliest high-speed destroyers, a good many ars before the War. The ship was built on long narrow nes, which had not before been attempted. She was going wn the North Sea at high speed in rough weather and ap-rently hit an unusually large wave. The general opinion as that her bow was lifted leaving her midship section un-pported, with the result that she broke her back and sank mediately. But that accident did not deter our ship-uilders from going on building still longer and faster estroyers.

Perhaps a still more illustrative case is that of the *Viper*, hich, if one's memory serves aright, was the first ship to built with turbine engines after the old original *Turbina*, hich so startled the Navy at Queen Victoria's second Jubilee aval Review at Spithead in 1897. The *Viper* was built by the Parsons Turbine Company as a private speculation to show what could be done with a turbine-engined destroyer. She left Newcastle to go round to Portsmouth and demonstrate to the Navy what turbines can do. And nothing more was heard of her.

If sea-going people of that day had adopted the attitude of some of the aeronautical folk of to-day we should have had no more turbine engines and our sea transport would have been much slower and less comfortable than it is now. One seems to remember at the time all sorts of arguments about the gyroscopic effects of high-speed turbines and their tendency to break ships' backs and so forth, just as one hears to-day all sorts of half-baked technical arguments against airships.

There have been times when those concerned with airships in this country have accused THE AEROPLANE and its Staff of holding anti-airship opinions, because less space has been devoted to airships in this paper than they would have liked. Personally we of THE AEROPLANE have never lacked faith in the ultimate development of airships. And the reason why the progress of airships has been somewhat neglected was precisely the same as the reason why the Royal Air Force has apparently neglected airships, namely, lack of money with which to deal with them.

The Air Force since the Armistice in 1918 has not had enough money to equip itself properly with aeroplanes. Consequently there has been no money available for airships. In the same way this paper has been unable to afford enough pages to deal as we should have liked with aeroplanes. And consequently there has been no space for airships except on special occasions.

Only a few weeks ago the Chief of the Air Staff, Sir Hugh Trenchard, addressing the University of Cambridge, foretold the day when big airships would be used as aircraft carriers for aeroplanes. That should surely be sufficient evidence of the faith of the Air Staff in the ultimate development of airships. And one's own faith in airships is equally firm.

We in this country are about to build two airships of large size, and a project is in hand in the United States, fathered by the Goodyear-Zeppelin Company, for the construction of a bigger airship than has yet been designed. One can only hope that the accident to the *Shenandoah*, so far from hindering the construction of this projected ship, will merely be a spur to the American Government to accelerate its construction.

People are apt to forget that the evolution of airships is necessarily a very slow process. At a rough estimate one may say that each generation of airships takes four years to produce. It is true that during the four years of the War 1914-18 the Germans built a very large number of airships. But many of them were of precisely similar type and the actual difference in design and construction between the ships of 1914 and the ships of 1918 was only about as great as it would have been if one ship per year had been built instead of several dozen.

The design of the *Shenandoah* in fact was merely that of a German ship, the *L.33*, of 1914 design and 1917 delivery with a few modifications in detail. The *Los Angeles*, otherwise the *Z.R.III*, which arrived in America from the Zeppelin Works in October, 1924, was a German design of 1921. And



THE SHENANDOAH.—The photograph illustrates the proportions, and the placing of the power-cars of the ship. The control-car which broke away from the fore part of the wreck is seen suspended, and not built into the hull as in the newer ships.

no ships of 1925 design are likely to be in the air before 1928 or thereabouts, unless the U.S. Government and our Air Council press forward their construction.

On the other hand new types of aeroplanes appear practically every three months. That is to say, there are four generations of aeroplanes in each year against one generation of airships in each four years. As one remarked some time ago, airships are like elephants, they breed slowly.

Therefore we cannot reasonably expect airships to attain to their ultimate stage of development for very many years to come. Possibly a hundred years hence we may arrive at a stage where the airship designer will be able to standardise his types to the extent that locomotives or bicycles are standardised to-day,—one purposely omits to mention automobiles, for almost any competent engineer who also happened to be a practical motorist could improve modern motor-cars out of all recognition if given a free hand by enlightened manufacturer.

In the meantime, as type succeeds type at four-year intervals, or thereabouts, the airship will slowly improve, and travel by airship will slowly become safer, that is so far as the actual construction of the airship itself is concerned. But, as Captain Sayers has indicated, no airship can be made safe simply by design and construction. The navigation of airships must be made safe by proper ground organisation. Colonel Paul Henderson's saying that the success of an air line is on the ground and not in the air is just as true of airships as it is of aeroplanes.

It is just as true of sea-going ships, for that matter. Our sea-borne traffic is comparatively safe to-day simply because of the ground organisation, including as it does the preparation of proper charts and the proper lighting of danger points.

Sea-going has been made very much safer of late years by Mr. Marconi's discovery of wireless telegraphy. Until a few years ago, although sea-borne ships were able to avoid dangerous coasts, many were sunk in mid-ocean and many persons were lost at sea either through being washed overboard or through being killed by the motion of ships, whereas now the big passenger lines at any rate avoid the worst weather by circumnavigating the storm areas.

Coming home from America last Autumn in the *Aquitania* we had an almost perfectly calm voyage because we travell South of a bad storm area of whose existence we had be warned by wireless from other ships which had had the mi fortune to run into that area and arrived in New York thr or four days late in consequence.

In the same way, no matter how well built and well designe airships may be they cannot be a safe vehicle of transpo until there is an adequate ground organisation to warn the against storm areas such as that which wrecked the *Shena doah*.

Until then we must be prepared to go on losing ships an losing lives. And the names of the officers and men who die in the wreck of the *Shenandoah* must go down in history a martyrs to the conquest of the air along with those of th men who died in the *R.38* and in so many other accidents t airships and aeroplanes alike.—C. G. G.

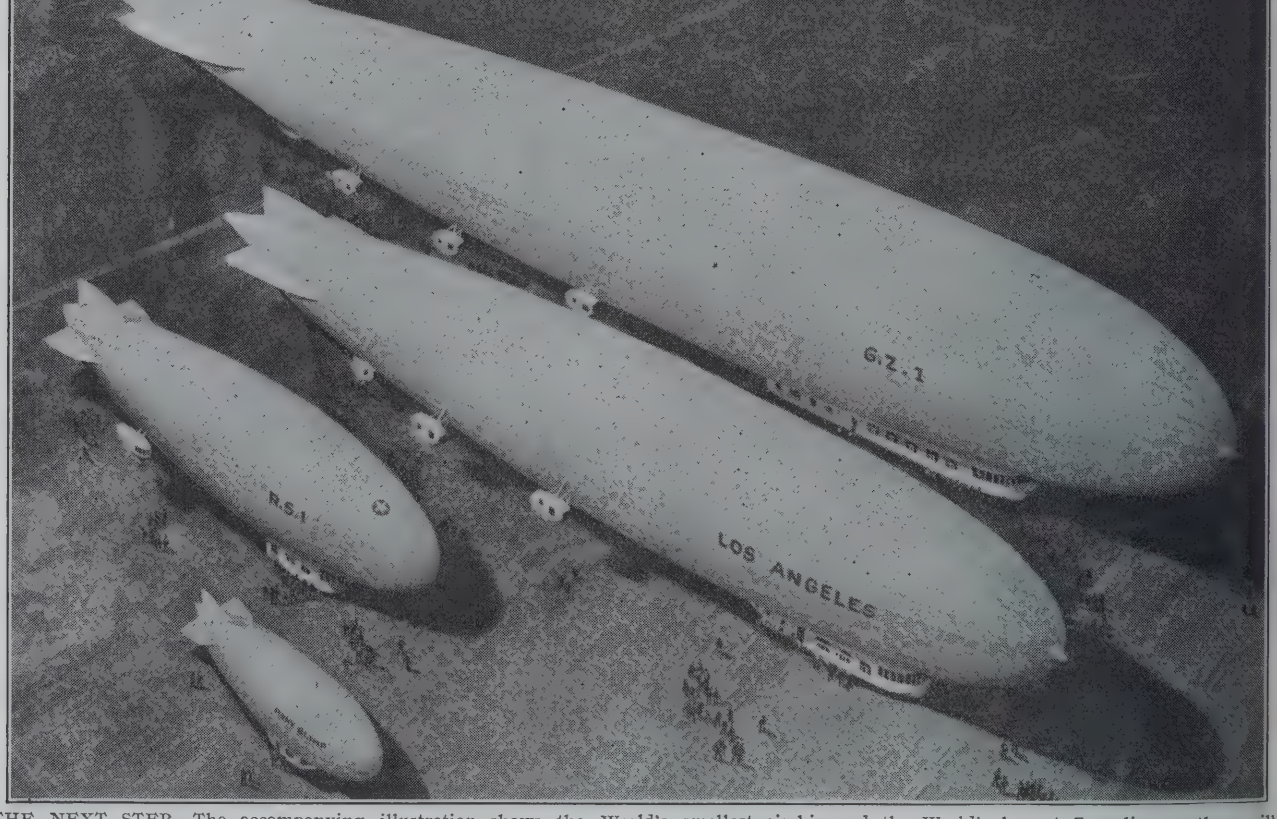
The Lesson of the "Shenandoah."

On the morning of Sept. 3, the United States Naval airshi *Shenandoah* was wrecked by a storm while flying in th neighbourhood of Cambridge, Ohio. The ship was broke into three portions. The after portion, and a portion contain ing the control car, fell close together, apparently almost im mediately, and the nose portion drifted some ten miles, as free balloon, before landing.

At the moment of writing the known casualties are 1 killed, one missing, and two injured, of a total complemen of 11 officers and 31 men. The dead include Commande Zachary Landsdowne, the commanding officer. Commande Louis Hancock, Lieut. Lawrence and Lt. Houghton.

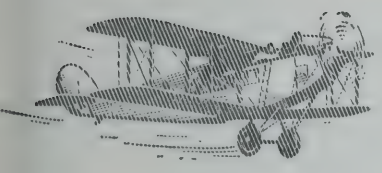
The *Shenandoah* left her base at Lakehurst, N.J., on th afternoon of Sept. 2, for a cruise to Minneapolis. Apparently as the result of a lack of ground meteorological service, sh ran into a violent local disturbance near Cambridge, in th small hours of the morning. Her speed was increased to 5 m.p.h. and a course steered to take her away from the dis turbance, but the ship was struck by a line squall, and wa shot up some 2,500 ft. During her descent from this alt tude she was struck by a second squall, and broke up, wit the result above mentioned.

From the fact that it is reported that all telephone and tel graph communication was severed in the neighbourhood o



THE NEXT STEP.—The accompanying illustration shows the World's smallest airship and the World's largest Zeppelin, as they will appear if and when completed, in comparison with the United States naval airship *Los Angeles* (Z.R.III) and the U.S. Army's semi-rigid air cruiser R.S.-1, now being assembled at Scott Field, Belleville, Ill., U.S.A. The *Pony Blimp*, in the immediate foreground, is now under way in the aeronautical workshops of the Goodyear Co. in Akron, and will be completed early this spring. When finished this non-rigid dirigible will be 100 feet long and will hold 47,000 cubic feet of gas. The enclosed cabin will have accommodations for three passengers and a pilot. The giant airship, G.Z.1, which will dwarf even the 656 foot *Los Angeles*, is now being designed in Akron, Ohio, by Dr. Karl Arnstein, of The Goodyear-Zeppelin Corp., and his staff of engineers. This mammoth air liner, which is still only a project, is to be more than 900 feet in length and will hold over 5,000,000 cubic feet of gas. The R.S.1, America's first semi-rigid ship, shown between the *Pony Blimp* and the *Los Angeles*, is 282 feet long and has a gas capacity of 719,000 cubic feet. It was constructed for the U.S. Army Air Service by The Goodyear Tire and Rubber Co., of Akron, Ohio.

Facts!



One Napier engine in use by Imperial Airways has travelled 170,000 miles and is still in service.

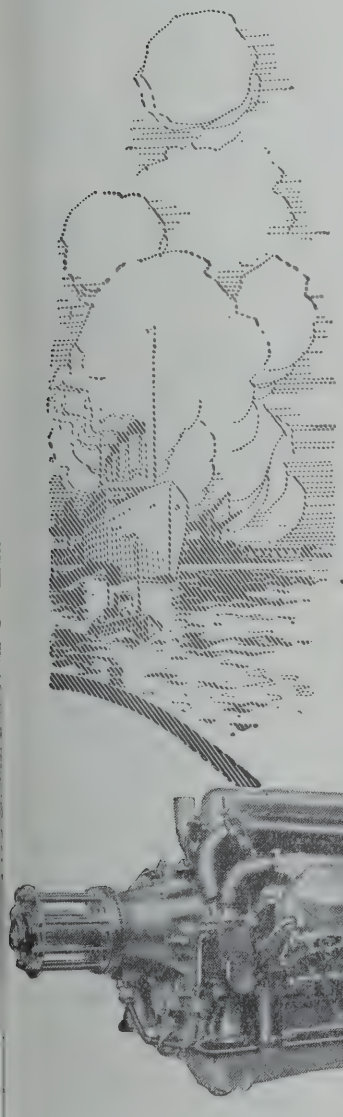
One journey of 10,000 miles—Amsterdam to Tokio—was made by Major Zanni without having to touch his Napier engine.

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the disaster it may be deduced that the squall which destroyed the airship was one of a really severe nature.

It has always been recognised that no class of aircraft yet built could be relied upon to withstand the effects of a really violent line squall if the full force thereof was encountered, precisely as it is recognised that no seagoing vessel can with certainty withstand the most violent of tropical typhoons. The safety of an airship in the face of the most violent of atmospheric disturbances must depend on her ability to circumnavigate them. As in general the most violent of atmospheric disturbances are also those which cover the smallest area, the continuation of a reliable service of meteorological information from the surface combined with a good knowledge of meteorology by the navigating personnel is essential and should generally be sufficient to avert disaster.

In this case—whether as the result of the breakdown of telegraph services or from the absence of an adequate wireless ground service—the *Shenandoah* appears to have received no warning of the disturbance until she ran into it, and then to have been unable to escape. Assuming this to have been the case, no inference is to be drawn that the *Shenandoah* failed as the result of defective design or inadequate strength.

Line squalls, such as are not infrequent in North America, will clear a track through the densest forests, and wreck complete towns. Thus any aircraft that meets such a squall will inevitably crash. A Service aircraft, such as the *Shenandoah*, must be prepared to cruise over any territory, whether that territory possesses proper ground meteorological services or not, and must therefore sometimes risk such a catastrophe as has now overtaken the *Shenandoah*.

The lesson to be drawn from the loss of this ship is that the safety of the airship—like that of the aeroplane—depends as much on an adequate ground organisation as on anything else. Any attempt that may be made to operate airships for commercial purposes in the absence of a complete system of meteorological information from the surface to the ship, may be expected to lead to the recurrence of accidents of this nature. The responsibility in such circumstances will rest, not with the airship designers and constructors, but with those who are responsible for the policy involved.

The U.S.A.S. *Shenandoah*—or Z.R.1, as she was originally styled—was a rigid airship, generally of the Zeppelin type, of 2,115,000 cub. ft. capacity. Her length was 680 ft., overall diameter 78.7 ft., and she was driven by six Packard engines of 300 h.p. each. Although only completed in 1923, Z.R.1 cannot be regarded altogether as a modern type of airship. The original design was undertaken before the Armistice on the basis of information obtained from captured enemy airships—L.33 in particular. No actual construction work had been undertaken before the Armistice, and work on the ship was postponed for some considerable period thereafter. As finally completed, the *Shenandoah* embodied a considerable number of detailed improvements, the result of experimental and research work on the part of the U.S. Naval Bureau of Construction, together with some assistance from certain officials of the Zeppelin firm. But in her main features the ship followed the original design, and must be regarded as a modified and improved member of the L.30 class—the first of which was built in the spring of 1916—and not as a representative of the modern airship. Actually Z.R.1 is a ship of older design than the ill-fated R.38, and represents probably a far less robust type than the *Los Angeles*—or L.Z.126—which was designed and built by the Zeppelin Co. for the American Government since the Armistice.

A Technical Point.

By kind permission of *The Daily Telegraph* the following article by Major C. C. Turner is reproduced in The Aeroplane. Major Turner is one of our most experienced balloonists, and his opinions on anything concerning lighter-than-air craft are worthy of serious consideration. He says :—

Capt. Heinen, formerly of the Zeppelin Company, who acted as consultant engineer in the building of the *Shenandoah*, states that some of the automatic valves in the gas-bags of that airship were removed with the object of conserving the gas.

These valves, it should be explained, are situated on the under part of the gas-bags, and are contrived to open when the expansion of the gas exerts a certain pressure. They are safety valves, which prevent the bursting of the envelope; and they are placed on the under part of the bags because it is only when the pressure becomes great there that there is any danger. There are other valves at the top of the bags, but these are operated by the crew for the control of the ship's buoyancy.

Capt. Heinen quite explicitly states that eight of the eighteen valves were removed; and if that was the case it will probably be revealed that these were of alternate bags. It may be expected, too, that the bags from which the valves were removed were only partially inflated, so that the gas in them could expand up to a certain point without danger.

This expansion would occur as the ship ascended to regions where atmospheric pressure decreases; and no doubt it was calculated that up to a certain height no risk would be incurred.

The statement that helium valves less freely than hydrogen is misleading; practically speaking, freedom of valving is a function of expansiveness; but helium being somewhat heavier than hydrogen, it is a trifle less "lively." Not in that did the danger lie, but in the removal of the safety valves.

It is probable that the ship was driven up by currents of air to a height not intended, and that some of the gas-bags from which the valves had been removed then split. They would not burst with an explosion; the fabric would tear open, and the gas would pour out.

This would mean the withdrawal of the interior pressure which helps to support the framework; and in this case probably it occurred at different parts of the ship. In that event it would not need the additional embarrassment caused by storm eddies and manœuvring the airship to bring about collapse of the framework locally, and this collapse would occur together with a sudden loss of buoyancy and rapid descent, the ship becoming unmanageable and out of trim.

All this explanation is speculative, depending as it does upon the verification of Captain Heinen's charges; but it is not inconsistent with the stories of eyewitnesses, and there is even a possibility that the witness who declares the ship descended and struck the ground before it broke in two was right, although the sudden bursting of some of the gas-bags might easily have brought about the parting of the airship in the air.

Capt. Heinen makes a startling charge, and it is almost inconceivable that the risk of removing the automatic valves was run. The inducement to do this, of course, would be in the heavy cost of helium and the fact that the supplies of that gas are strictly limited.

At the same time, it must be pointed out that it is one of the first rules of lighter-than-air aeronautics to have a safety vent. Few people who have not handled it realise what a tremendous force gas can exert in expansion. In "free" ballooning it is a cardinal rule to open the neck of the balloon before leaving the ground, and there have been one or two accidents through the neglect of this precaution or some accidental interference with the freedom of the gas to pour out as the baloon ascends.

At the same time, we must await confirmation of Capt. Heinen's allegations. In this, as in all such matters, very decided opinions have been expressed by people who are always able to produce an opinion on any subject under the sun at a moment's notice. All branches of aeronautics, moreover, are the playground of the sensation-monger, and ignorant enthusiasm vies with equally ignorant pessimism.

There have been reports lately of an American scheme for building airships seven times the size of the *Shenandoah*, airships of 15,000,000 cubic feet. Of course, no person of consideration has ever given a moment's thought to such a project. Airship development must be slow, and each step must depend upon the step before it. If somebody endowed airships with a hundred millions sterling it probably would not greatly hasten progress.

If Capt. Heinen's statement should be verified, there is nothing in the accident to shake one's faith in airships. If, on the other hand, the ship broke in the air through stress of weather there is nothing in the occurrence to change British airship plans, which depend entirely upon research work, which will determine the stresses imposed in all conditions before a step is taken towards building new ships.

A Charge of Incompetence.

The Times correspondent in New York sent the following message on Sept. 6 :—

Colonel William Mitchell, formerly Assistant Chief of the Army Air Service, who was superseded and sent from Washington to Texas, has openly defied the War and Navy Department by issuing a long statement in terms of bitterest criticism.

Infuriated by the declaration of Mr. Wilbur, Secretary of the Navy, that the disaster to the *Shenandoah* and to the U.S. flying boat PN9 No. 1 prove that the Atlantic and the Pacific are the country's best bulwarks against air invasion, Colonel Mitchell replied that such an invasion would be made *via* Iceland or Alaska, traversing narrow sea belts.

Colonel Mitchell said : "These accidents are the direct result of incompetence and criminal negligence and almost treasonable administration by the War and Navy Departments, who have conducted aviation affairs so disgustingly in the past few years as to make any self-respecting person ashamed of his uniform."

Colonel Mitchell denounces the non-flying bureaucratic superiors who dictate policy while preventing flying officers from telling the truth.

It is generally expected that Colonel Mitchell will be court-martialled and will be required to prove his charges, which include a denunciation of the Pacific naval manœuvres, of useless battleship construction, and of the inadequacy of anti-aircraft defences, and a declaration that the non-stop flying boat flight to Hawaii and the attempted aeropanc exploration scheme with the MacMillan expedition were publicity schemes.

From White Court, Swampscott, it has been clearly indicated that the President will request Congress to make appropriations for the construction of a new airship embodying the lessons learnt in the *Shenandoah's* history.

The R.A.F. and the "Shenandoah."

In connection with the loss of the airship, *Shenandoah*, Sir Samuel Hoare, Secretary of State for Air, has sent the following message to the Secretary of the Navy Department Washington :—

On behalf of the Air Council I express our profound regret at the terrible accident to the *Shenandoah* with the loss of so many of her gallant crew, and beg to offer our deep sympathy for the relatives of those who have been lost.

Air Chief Marshal Sir H. M. Trenchard, Chief of the Air Staff, has dispatched the following to Rear-Admiral Moffett, Chief of the Bureau of Naval Aeronautics, Washington :—

On behalf of the Royal Air Force and myself I wish to offer our most sincere sympathy in the loss of the airship *Shenandoah* and so many of her crew. We deplore the misfortune which has deprived aviation of Lt.-Cdr. Lansdowne and his comrades.

R·A·F· TYPES — No 4.



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FOR INFORMATION AND ACTION.

["All the World's Aircraft." Founded by Fred T. Jane. Compiled and edited by C. G. Grey. (Sampson Low. 428 pp. 42s. net.)]

The 1925 edition of *All the World's Aircraft* is now on sale. As it is produced by sundry members of the staff of THE AEROPLANE one cannot very well review it in the ordinary way in this paper. Therefore apparently the best thing one can do is to quote reviews of the book which have appeared in papers whose standing entitles them to respect.

The Times says :—

Aircraft are an essential part of the armed forces of all nations, and civil air routes have reached a standard of reliability which has removed much of the doubt from the mind of the business man as to their uses in commerce. Each day large numbers of people cover thousands of miles by air with little more fear of mishap than would afflict them in travel by land and sea.

Confirmation for these statements may be found in the new volume —the fifteenth—of "All the World's Aircraft" not only in the general mass of information supplied, but in what one may term the standardisation of the book itself. The improvement obvious last year has been maintained, and it can be considered with justice to be an essential reference book for aeronautics, as necessary to the industry and the Services as is Lloyd's Register of Shipping to those concerned with the sea

This year an official list of civil air routes now in operation in different parts of the world is supplied, a convincing proof of the development of civil aeronautics. A year or two ago such a list would have meant little, as many of the lines existed merely in name, but to-day an examination shows that the majority of the routes recorded actually operate in accordance with their stated programme.

The usual details in regard to the aircraft and aircraft engines of the world are given lucidly and in detail. The figures are, as a rule, given both in metric and British measures. The reader may find all that he would like to know of any machine in which he is interested illustrated by plans and by photographs.

A study of the book will reveal to him the general lines of progression in aeronautics. Eccentricity is rapidly disappearing from design, and there is no sign of anything revolutionary in the form or performance of aircraft.

The Times Literary Supplement says :—

The fifteenth issue of "All the World's Aircraft" shows continued improvement in its methods of presenting aeronautical information for the past year.

The Historical Section, in which the progress of aeronautics and the air organisation of each country are summarised, has much of interest both to those engaged in aerial affairs and to the general public. Full details are given of the new Italian air arm formed under the supreme direction of Signor Mussolini. A reference to Soviet Russia will show the reader the very definite efforts which are being made in that country to establish the strongest military aviation corps in the world. Over a thousand new aeroplanes are to be added during the current year, many of which are to be built in Russia.

In the United States Mr. Henry Ford is organising air lines between his many factories, convincing proof of the stability of aeronautics and its commercial uses. A night air mail service now runs with regularity between New York and Chicago. In the British Dominions, aircraft have become an essential part of the national life. Over Europe there is a network of civil air services in constant use as a matter of routine by hundreds of passengers, for both business and pleasure.

In the section devoted to detailed description of aircraft there are many new machines, some of which have achieved special distinction during the past year. Each is illustrated by line drawings and photographs. In other smaller sections details are given of aircraft engines, of airships, of helicopters, and of gliders.

As a work of reference the book is essential to all those engaged in aeronautics.

The Daily Telegraph says :—

This year's issue of this well-established annual shows an improvement even on last year's, when an entirely new form was adopted, and it contains valuable novel features, besides reflecting the stabilising of the new industry and the now recognised importance of the aerial arm. In its early years (it was started in 1911) the compilation of this book of reference was an extremely difficult affair, and much unnecessary matter inevitably intruded. The book is now very little open to any criticism on that score. At the same time it steadily increases in bulk.

The section dealing with German aircraft is again assuming considerable proportions, and there are no fewer than forty-eight countries whose aircraft are described. In the British Empire progress has been so rapid that this section contains twenty more pages than it did last year.

One of the new features is a useful index of aeroplanes, engines and airships, in which individual types appear under their own names, as distinct from the makers' names, and under their type letters and numbers, along with the names of the makers, and are given as far as possible in all their alternative and colloquial forms. Thus any reader who knows the name of a product, but not that of its maker, can find all available information concerning it.

Other new features are a complete list of the air lines of the world, and a list of notable flights of the previous year and of all the more important flight records.

The book well repays a little study before it is placed on the reference shelves. Thus, in the engine section, it will be seen that a firm of British aero-engine makers has sold licences to build its engines to France, Italy and Czecho-Slovakia. Again, many of the foreign air transport companies fit British aero-engines to their machines, and many foreign air forces use British aeroplanes.

The editor pays a deserved tribute to Captain Sayers for his assistance on the technical side, and to Mr. Bridgman for the technical drawings which supplement the innumerable photographs to such good purpose that one could wish there were more of them.

The Manchester Guardian says :—

In 1911 Mr. Fred T. Jane founded "All the World's Aircraft." Th annual, now admirably edited by Mr. C. G. Grey, has reached i fifteenth year of issue. The 1925 volume is an improvement on i predecessors, and it faithfully records how the flying movement, on i commercial and martial sides alike, is spreading slowly but surel throughout the world.

In this volume, for the first time, Afghanistan, for instance, appea as a country owning an air force. Within the British Empire Canad and Australia now take their places as countries where not only a aircraft used to great advantage, but where design and constructio have made beginnings.

The technical section of the volume is profusely illustrated wit photographs and specification drawings, and, with the exception those kept secret by the Air Ministry, practically all types of moder aircraft, British and foreign, are described in detail. There are eve to be seen drawings of the Armstrong-Whitworth transport aeroplan with three Jaguar engines, which is the type now on order for Imperi Airways Limited, and which may be destined shortly to carry ou letters on from Egypt to India.

In the present and future years a greatly increased circulation "All the World's Aircraft" may safely be prophesied.

On one's own account one would add that year by ye *All the World's Aircraft* is to all intents and purposes a entirely new publication. The only aeroplanes which a illustrated and described are those which are in current us or actually on test or in process of construction. All typ which have become obsolete during the previous year a removed from the latest edition of the book and all discove able new types are added thereto.

Similarly, in what is known as the Historical Section, a information which has become out-of-date during the previo twelve months is deleted. And so the section devoted the history of aeronautics in each country is an account developments during the twelve months previous to the pu lication of the volume.

Thus in each year the new volume becomes a sequel to th of the previous year. Therefore those who acquire copies *All the World's Aircraft* year by year have in their possessi what amounts to a complete history of the World's progre in aeronautics, Service and civilian and technical, for all t years covered by those volumes.—C. G. G.

BELLA HORRIDA BELLA.

["The Great Pacific War," by Hector C. Bywater. Co stable and Co., Ltd., London. 317 pp. 10s. 6d. net.]

In his preface to this book Mr. Bywater says that for t moment the Pacific horizon is fairly free from clouds, a that if war between Japan and the United States of Ameri is happily improbable, it remains a contingency that cann be dismissed as wholly impossible.

The book itself is a conscientious attempt to describe, the style of a popular history, the course of an imaginary w between the United States and Japan, beginning in Janua 1931 and ending in March, 1933.

In making his war in the very near future, the auth avoids the difficulty of having to handle imaginary engin of war. His battleships, guns and aircraft are the weapo of 1918, with a slightly better range, and his strategi have learned nothing from previous wars. We are told ho after the fatal expedition to the Bonin Islands, in whi the U.S. Fleet meets with disaster, Admiral Dallinger is lieved of his command. "Hard though it may seem for distinguished flag officer to be thus suspended as the res of a disaster which he had forseen and done his best to ave the Government no doubt felt that it would be unwise continue in his command one who had come to be regard by the public as an unlucky admiral."

Mr. Bywater differs from other prophets in his descripti of the circumstances which lead up to the Great Pacific W Japan decides on war with America as a solution to h domestic difficulties, and uses for an excuse certain c cessions granted to an American firm by the Peking Gove ment for working iron and coalfields in an upper province the Yangtsze Valley, a district in which Japanese intere had previously been paramount.

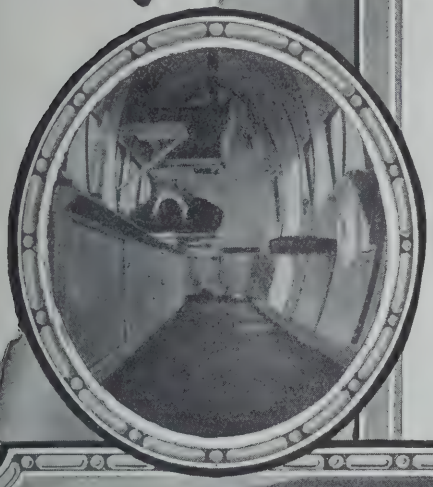
Throughout the whole campaign Japan is hampered trouble with Russia and China. Friction with Russia beg three months after the outbreak of war, when Russia mands the restoration of Northern Sakhalin, Japan's princi reservoir of oil. In this connection the author says : "No knew better than the statesmen of Japan that the Imperia traditions of the Tsarist régime had survived the revolut of 1917, and that Russia still turned covetous eyes on rich lands of Manchuria and Mongolia, which she was o too eager to bring under her sway should circumstan afford her the opportunity. Sooner or later, as most Japan believed, another war would have to be fought with Rus for the control of China."

In the summer of 1932 the Chinese Government deci to enforce an embargo on the export of war munitions fr Chinese territory, and calls the attention of Japan to fact that the coal, iron, etc., being raised from Chinese mi comes under this category. The Japanese Government

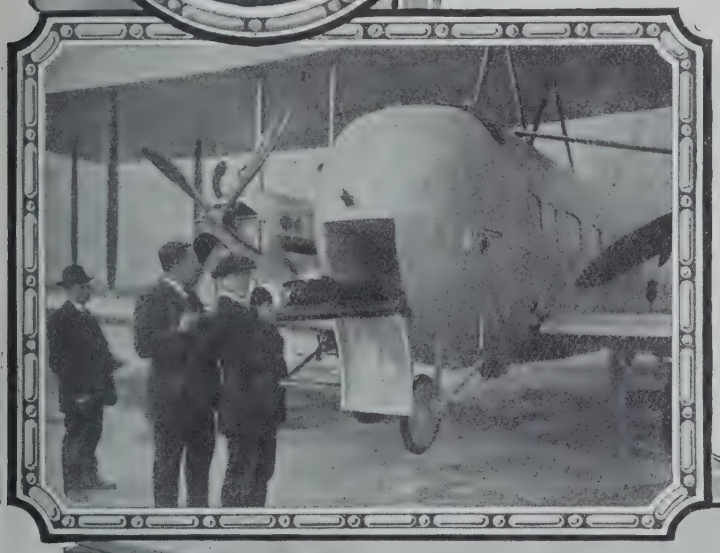
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compelled to temporise, and China declares war. Her army is 400,000 strong, and takes the field with the hearty good will of the Chinese nation at large.

The first act of war is the blocking of the Panama Canal by a Japanese merchant ship. The vessel is boarded by an American guard boat on entering the Canal, and appears to be loaded with heavy machinery. Half way through the Culebra Cut she blows up, and the shock of the explosion dislodges millions of tons of earth from the steep sides of the ravine and makes the Canal impassable for several months. This disaster separates the U.S. Atlantic Fleet from the Asiatic Squadron, and also rules out the Atlantic coast Navy yards for the time being.

Japan makes prompt use of the time at her disposal before the Atlantic Fleet can cover the 13,000 miles round the Horn, and attacks the Pacific Fleet, inflicting a heavy defeat.

The Author goes on to give a vivid description of the various tactics which lead up to the capture of the Philippines by 24 troop-ships, escorted by the Japanese Navy.

The defence of Guam, the next point to be attacked by Japan, is a thrilling story. Two naval transports with a consignment of artillery and other war material intended for Manila, receive a wireless message recounting the fall of the Philippines, and not having enough coal to retrace their steps, put into Guam. The Governor of Guam promptly unloads the war stores and proceeds to defend the island. The Governor is described as a former lecturer at the Naval War College with a reputation for ingenious if somewhat unconventional views on strategy and tactics. The weak point in the defence of the island is the shortage of aircraft, because so long as enemy aircraft was overhead it would be impossible to move a single gun without exposing it to instant fire from enemy ships, and owing to the shortage of armament it was necessary to move the guns from place to place. Guam has eight aeroplanes, four bombers and four scouts, and the Governor uses them all to launch an attack on the enemy aircraft carrier. This proves a successful policy, although the author does not explain how it was that the American machines managed to leave their base and arrive over the aircraft carrier before the carrier's scouts spotted and engaged them. The Guam machines manage to drop enough bombs on to the flying deck of the carrier to put most of the Japanese aircraft out of action, but are themselves wiped out by the machines which had already left the deck.

Mr. Bywater gives full credit all through the book to the value of aircraft for spotting purposes. Again and again he says, "Thanks to the spotting aircraft almost every salvo took effect." But in his description of the last great battle of the war he says, "How different now were the circumstances from those which aviation enthusiasts, deceived by artificial peace tests against helpless targets, had pictured." He describes the battle as starting with a scrimmage in the air in which dozens of machines went down out of control "The Japanese aviators never hesitating to ram when otherwise baulked of their prey." The surviving units of the U. S. air arm are put out of action by gas distributed by the Japanese aeroplanes. Mr. Bywater's aviators are not equipped with gas masks in 1932.

An attempt to stop the war by popular outcry is made by Japan in the first few months. A fast passenger boat is fitted out as an auxiliary aircraft carrier with stowage capacity, for 20 seaplanes, each able to carry half a ton of bombs, and is accompanied by an oil tanker. The two vessels are disguised as British Blue Funnel liners on the Vancouver-Australia route, and manage to creep up to the Californian coast. The seaplanes are lowered over the side and make a simultaneous attack on San Francisco, Oakland and Los Angeles. Railroad artillery is brought up to defend the coast towns and a number of aircraft have to be detached from more important service. Japan, therefore attains her objective. The expedition returns home having only lost two seaplanes.

Another raid on the Californian coast is carried out by a large Japanese submarine carrying a scouting aeroplane. Considering the damage this submarine inflicts on American coast towns and shipping during her cruise her torpedo carrying capacity is nothing short of miraculous.

The Author is at great pains to point out the weakness of the American system of training its naval personnel. He says that while it is impossible to turn out an efficient man-of-war's man in less than six years, the U.S. bluejacket is only enlisted for four years. To this lack of efficiency he attributes several of the U.S. naval reverses.

In his preface Mr. Bywater admits that the Bonins expedition was so foolhardy an undertaking that it would never for a moment commend itself to the merest tyro in naval strategy, but he defends himself by saying that it was no more hazardous and unsound than certain operations seriously advocated by professional strategists during the war 1914-1918. It meets with the disaster it deserves.

How the United States eventually achieve control of the Pacific is thoughtfully worked out, but the bluffing of the Japanese Navy by the feigned expedition to Dutch Harbour and the constant use of dummy battleships is unconvincing and he does not allow the Japanese air service a pair of field glasses amongst them. He explains the deception by saying that the Japanese officers were imbued with a contempt for American intelligence and ready to believe the enemy capable of any mistake however flagrant.

The story of the adventure of the captured wooden guard boat the "Bear" and her solo raid into Dutch Harbour is delightful.

The book is extremely interesting to the general reader and may even cause some amusement in the Staff Colleges of the World.—C. M. McA.



THE COMPLETION OF A GREAT FLIGHT.—The Fokker F.VII (360 h.p. Rolls-Royce Eagle IX engine) used by Mr. Van der Hoop on his flight from Amsterdam to Batavia, flying over Tandjong Priok, near Batavia, Java.

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THE ROYAL AIR FORCE.

The London Gazette.

Sept. 1.

GENERAL DUTIES BRANCH.—The following Flt. Cadets having successfully passed through the R.A.F. Cadet College, Cranwell, are granted perm. comns. as Plt. Offs., with effect from, and with seniority of, July 31:—L. W. Cannon, T. N. McEvoy, J. Eaton, W. M. C. Kennedy, B. A. C. Danbury, H. H. V. Tristem, R. Kellett, T. E. Worsley, G. P. Chamberlain, A. D. Gillmore, J. D'Arcy Keary, J. A. P. Harrison, E. G. Hordern, A V. Hammond, J. R. Jones, F. M. V. May, R. C. Wilson, H. L. Patch, G. E. G. Lywood, B. W. Knox, T. H. Carr, C. H. G. Bremridge, J. G. D. Armour.

Lt. W. Sitwell Lea, R.N., is granted a temporary comn. as a Flg. Off. on attachment to the R.A.F. for four years (Aug. 18).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—L. W. Dickens (June 19), F. E. R. Dixon, M.C. (July 3).

The following Plt. Offs. on probation are confirmed in rank:—K. C. Baker, W. F. Bryanton, P. B. Chubb, P. K. Copperthwaite, G. W. Cripps, E. J. Ellis, T. P. F. Fagan, F. S. Homersham, D.C.M., M.C., J. A. E. Inkster, L. B. McGoverne, G. P. Mee, G. M. E. Shaw, D. C. Sherman, W. A. Shorten, V. J. Sofiano, E. T. Wiltshire (July 6), H. A. Evans-Evans, C. W. Woodbyrne (July 7), H. E. N. Burton (Aug. 6).

Flt. Lt. E. L. Barrington, M.C., D.F.C., is placed on the retired list at his own request (Sept. 1); Flg. Off F. O. Burnley is transferred to the Reserve, Class B (Sept. 1); Flg. Off. H. E. Y. Carroll (Lt., 8th Hussars) relinquishes his temp. comn. on return to Army duty (Aug. 1); the S.S. comn. of Plt. Off. on probation R. C. W. Smyth is terminated on cessation of duty (Sept. 1).

MEDICAL BRANCH.—Flt. Lt. T. P. Harpur resigns his temp. comn. (Sept. 1).

MEMORANDA.—Lt. D. N. Stewart-Saville, M.C. (Half-pay list), is granted the rank of Capt., R.A.F., on retirement from the Army; Sec. Lt. H. Hansom relinquishes his honorary commission on enlistment in the Territorial Army.

The permission granted to Capt. C. Lawrence to retain rank is withdrawn on his conviction by the Civil Power (July 1).

Appointments.

Week ending Sept. 7.

GENERAL DUTIES BRANCH.—Squadron Leaders A. S. C. S. MacLaren, O.B.E., M.C., D.F.C., A.F.C., to R.A.F. Depot, Uxbridge, 21/9. C. N. Lowe, M.C., D.F.C., to H.Q., Special Reserve and Auxiliary Air Force, 7/9. G. E. Livock, D.F.C., to Marine Aircraft Exper. Estab., Felixstowe, 14/9. C. E. H. James, M.C., to Station Commandant, Basrah, 14/8.

Flight Lieutenants A. McR. Moffatt, to H.Q., Coastal Area, 31/8. John Potter, to I.A.A.D., Henlow, 27/8. C. D. Fuller, to School of T.T. (Men), Manston, 2/9. K. H. R. Riversdale-Elliot, to No. 1 Group H.Q., Kidbrooke, 27/9. Frank Wright, to Air Ministry, 8/10.

Flying Officers L. A. W. Deane, to I.A.A.D., Henlow, 7/9. R. E. M. Milne, to No. 28 Sqdn., India, 11/8. O. K. Stirling Webb, to No. 1 School of T.T. (Boys), Halton, 7/9. J. E. Hewitt (Lt., R.A.N.), to School of Naval Co-operation, Lee-on-Solent, 7/8. F. E. Bond, to R.A.F. Base, Gosport, 14/9. J. S. Nichol, to No. 11 Sqdn., Netheravon, 27/9. A. G. S. Tuke, to No. 1 Stores Depot, Kidbrooke, on transfer to Home Estab., 27/7. A. R. Buchanan, to R.A.F. Depot, Uxbridge, 2/9. A. A. C. Hyde, to No. 9 Sqdn., Manston, 3/9. B. M. T. S. Leete, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 16/8. R. L. McK. Barbour, D.F.C., to No. 22 Sqdn., Martlesham Heath, 7/9. C. V. Lacey, A.F.C., to I.A.A.D., Henlow, 27/8. G. A. F. Bucknall, to No. 2 F.T.S., Digby, 4/9.

Pilot Officers H. H. V. Tristem, to No. 207 Sqdn., Eastchurch, instead of No. 3 Sqdn., Upavon, 31/7. J. G. D. Armour, to No. 3 Sqdn., Upavon, instead of No. 207 Sqdn., Eastchurch, 31/7.

MEDICAL BRANCH.—Flight Lieutenant T. R. S. Thompson, M.B., to H.Q., Coastal Area, 3/9.

STORES BRANCH.—Flying Officer Horatio Sleigh, to No. 602 Sqdn., Glasgow, 15/9.

ACCOUNTANT BRANCH.—Flight Lieutenant F. O. Hall, to No. 2 Arm. Car Coy., Palestine, 27/8. Flying Officer W. J. Heneghan, to No. 2 F.T.S., Digby, 11/9.

A Fatal Accident.

The Air Ministry regret to announce that as a result of an accident at Lee-on-Solent, Hants, to a Blackburn Blackburn machine, of R.A.F. Base, Gosport, on Sept. 4, Flg. Off. (Hon. Flt. Lt.) Geoffrey Ashton Cavis-Brown, the pilot and sole occupant of the aircraft, was dangerously injured and died shortly afterwards.

The Fleet Air Arm.

The Times of Sept. 1 states:—

The aircraft-carrier *Furious*, Capt. John L. Pearson, C.M.G., which has been paid off under dockyard control at Devonport since June, 1922, and has undergone extensive alterations, is to be commissioned to-day for service in the Atlantic Fleet in place of the *Argus*, Capt. S. L. Willis.

The *Argus*, on relief, is to proceed to Chatham for large repairs. A number of observer officers, R.N., are to transfer as from to-day from the *Argus* to the *Furious*, including Cdr. Patrick Butter and Lt.-Cdr. I. W. G. White.

55 Squadron.

55 Squadron Dinner duly took place on Aug. 8 but owing to a number of officers being away on leave it was not as well attended as usual. Nevertheless several of the officers who commanded the Squadron in the past were able to attend.

The Chair was taken by Wing Cdr. Baldwin, who raised the original Squadron and commanded it in France till given command of a Wing. Among the other field officers present were Sq. Ldrs. Edward Rice, Alec Gray, and Reginald Maxwell.

After dinner there was a discussion as to the best time of the year at which to hold the Dinner and those present unanimously agreed that the Dinner should be held in March.

Inter-Service Cricket.

The cricket match between the R.A.F. and the Navy played at Lords on Aug. 25, resulted in a draw in favour of the R.A.F. There was no play on the first day owing to the weather.

The Navy went in first and were all out in an hour and three-quarters, for 97. Wing Cdr. Blount took three wickets for 8 runs, AC. Jennings took four for 31, and Sjt.-Maj. Charters took two for 23. The R.A.F. fielding was excellent.

The R.A.F. then went in and started well, Plt. Off. A. J. Holmes, and Sjt.-Maj. Charters making 82, before they were separated. Six wickets were down at tea-time for 162, Flg. Off. E. V. Hudson having scored three boundaries off successive balls from Maj. Brooks. The innings was declared closed at 204 for nine wickets. Lt. Boucher, R.N., took five wickets for 44 runs.

Lt. Sparks and Mr. Hunt made a fine stand for the first wicket of the second innings, the latter making 30 runs. At the close of play the Navy had 48 for three wickets.

The R.A.F scores were:—

Plt. Off. A. J. Holmes, c. Congdon, b. Gornall, 31.
Sjt.-Maj. F. H. Charters, c. Brooks, b. Boucher, 63.
Wing Cdr. C. H. B. Blount, l.-b.-w., b. Congdon, 4.
Flt. Lt. L. F. Marson, c. Evans, b. Brooks, 22.
Flt. Lt. E. W. Fawcus, c. Evans, b. Boucher, 3.
Flg. Off. E. V. H. Hudson, c. Jameson, b. Boucher, 28.
Sq. Ldr. B. E. Baker, c. Hunt, b. Brooks, 6.
Sq. Ldr. G. E. Livock, c. Sparks, b. Boucher, 16.
Flt. Lt. C. G. Wigglesworth, not out, 17.
Flt. Lt. R. S. Sugden, c. Bartley, b. Boucher, 6.
AC. L. F. Jennings, not out, 0.
Byes, 8.
Total (9 wkts.), 204.

Association Football.

The R.A.F. Football Association arranged a trial match at Uxbridge on Sept. 2, for which 66 names were submitted by various Units.

A good fixture-list has already been arranged and the Association hopes to add several other matches to the list. The fixtures at present are:—

Sept. 14, v. Rotherham County at Rotherham.
Sept. 30, v. Middlesex County at Uxbridge.
Oct. 8, v. Spartan League XI at Halton.
Oct. 21, v. F.A. Amateur XI at Cranwell.
Oct. 31, v. Tottenham H. at Tottenham.
Nov. 14, v. Southampton at Southampton.
Jan. 23, v. Corinthians at Crystal Palace.
Mar. 17, v. Civil Service at Chiswick.
Mar. 24, v. Royal Navy at Portsmouth.
Apr. 10, v. Army at Uxbridge.

The team selected at the trials to represent the R.A.F. at Rotherham, was:—

Goal: AC. Locke (Manston); backs: AC. Owens (Calshot), Flt. Sjt. Fretwell (Hawkinge); half-backs: Cpl. Aitken (Cranwell), Flt. Lt. Dickson (Cranwell), L-AC. Underhill (Andover); forwards: Sjt. Francis (Cranwell), AC. Bishop (Henlow), Flg. Off. Williams (Cranwell), L-AC. Vernon (Gosport), AC. Morris (Halton). Reserve, L-AC. Patterson (Digby).

From Palestine.

This story though it has nothing to do with flying is too good to be lost. A certain officer of the R.A.F. who is known to everybody in the Service except the latest-joined, for his aptitude in repartee, was some time ago in the lounge of an hotel in Jerusalem when there entered to him an American globe-trotter of the speediest type.

The Yank had done Palestine in about a week and like most people did not think much of it. He opined correctly that the Zionists were crazy for thinking that anybody would ever want to live in such a dust heap. But the R.A.F. officer recollecting that Palestine is at any rate British Mandated Territory thought it his duty to put up some kind of a show. In spite of proffered and accepted hospitality the Yank held that not only could nothing good come out of Nazareth but that nothing good could be in Palestine.

Finally he let loose on the famous Judæan Hills and remarked that they were not a circumstance when compared with his Adirondacks and Rocky Mountains and wound up by saying "And say, just as a personal matter, it may interest you to know that my father discovered the Rocky Mountains." The British officer was duly impressed by the honour of meeting the son of the discoverer of the Rockies.

After a little further refreshment he said to the Yank "I suppose in your trip round Palestine you came across a funny little place that they call the Dead Sea?" The Yank admitted that he had and that he did not think much of it. "Well," said the R.A.F. officer, "Just as a personal matter you may be interested to know that my father killed it."

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THE PILOT INSTRUCTORS OF THE LONDON AEROPLANE CLUB.



CAPTAIN F. G. M. SPARKS, Chief Instructor of the London Aeroplane Club.



Mr. G. T. WITCOMBE, Second Instructor of the London Aeroplane Club.

Captain Sparks writes:—

"Now the London Aeroplane Club has completed its first week's flying I am prompted to record the complete satisfaction the D.H. 'MOTHS' have given. I have flown some 25 hours during the week, and have found the 'MOTH' quite the most suitable type for instruction—already some of the members, considering the short time they have as yet spent in the air, show extraordinary promise. The engine installed by you—the 60 h.p. 'CIRRUS'—has run faultlessly and has inspired the greatest confidence in both instructors and pupils. Not the sightest adjustment has been necessary to aircraft or engine, and I am now confident that the 'MOTHS' will stand up to the particularly exacting service to which we shall submit them."

Mr. Witcombe writes;—

"Having completed a week's work of instructing on the 'MOTH,' in that time doing over 20 hours flying without trouble of any description, I feel that it must rank in the first line of training machines, and that for its size and power, and consequent low cost, it is certainly the best."

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The Mosul Question.

The proceedings before the Council of the League of Nations in relation to the continued occupation of the Mosul area by Great Britain opened at Geneva on Sept. 2.

The Geneva correspondent of *The Morning Post*, in a message dated Sept. 3, states :—

Tewfik Rushdy Bey opened the session by orally charging the British Navy with having violated territorial waters, engaged in target practice in the Dardanelles, turned searchlights on Turkish villages, and used demilitarised islands in the Ægean as naval bases.

He reiterated his charges that aeroplanes had flown over the neutral zone, and said that renegade bands, five hundred strong, were raiding Turkish villages. He declared that an atmosphere of tranquility was impossible unless the League Council immediately demanded that Britain should find a remedy for the situation, otherwise he was authorised not to proceed with the discussions.

Mr. Amery, who replaced Mr. Chamberlain, categorically denied that the British Navy had violated international rules, saying that the matters Angora complained of were merely the regular summer manœuvres in the Mediterranean, which did not take place within ten miles of Turkey. He admitted that the air patrol twice weekly flew over Mosul, but he insisted that it had not crossed the lines, although it might have been within sight of Turkish villages. The other charges he declared were without the smallest foundation.

[Presumably Tewfik refers to the period of the Chanak crisis, after the Turks had chased the Greeks out of Asia Minor and were a trifle swelled-headed in consequence. At that time the Fairey III D. seaplanes flew over about half of Anatolia and produced much effect because the Turks imagined that their floats were enormous bombs. In any case, the higher the hand we adopt with the Turks the better, for square-heads only understand the argument of force, and and the long-headed aristocracy of Turkey, with whom we used to be friendly, are now nearly as dead as the Russian aristocracy.—C. G. G.]

Engineers in the R.A.F.

The following letter appeared in *The Times* of Sept. 8 :—

To the Editor of *The Times* : Sir,—The following passage occurs in the Report of the Aeronautical Research Committee for the year 1924-25 :—"The Committee call attention to the need of officers with more technical knowledge, and to the hope expressed in their last report that it will not be impossible to provide for highly-skilled persons to make a direct technical diagnosis of each power plant failure immediately it occurs." In their previous annual report the Committee had felt impelled to make the grave statement that "accidents which, in the view of the Committee, are primarily due to the absence of this (technical) knowledge continue to occur. Many machines are destroyed, while in some instances lives are lost."

It will probably be news to many of your readers that alone of the three Services the Royal Air Force has no technical branch of trained engineers. The policy of the Air Council is set forth in a recent statement of the Chief of the Air Staff :—"I feel that every pilot must be in a similar position to the owner of a motor-car who does not need a chauffeur," although 12 months ago the Aeronautical Research Committee stated that "it is impossible at once to secure the necessary knowledge in the case of *all* officers." (The italics are mine.) The maximum technical training that the ordinary pilot in the Royal Air Force receives is an elementary course in science and engineering sandwiched among many other subjects during a two-year course at the Cadet College at Cranwell.

A few selected officers take an engineering course at Farnborough, some of whom then go to Cambridge to take the Engineering Tripos there. These officers, however, are not formed into an engineering branch and employed solely upon engineering duties as they should be, but remain in the "General Duties List" with the ordinary pilots. The fact that the Aeronautical Research Committee view this procedure with dissatisfaction is shown by their further comment that "they consider it desirable to utilise to the full the knowledge of such officers as possess the necessary qualifications"

The need for a branch of qualified engineer officers in a special list for promotion entirely separate from the "General Duties" list is most urgent, and is, in my submission, the only way in which the requirements of the Aeronautical Research Committee can be met. Unfortunately a study of the "Air Force List" shows that there is no qualified engineer above the rank of Wing Commander in the Royal Air Force at the present time to urge the need of this reform, so pressure must come from without.

(Signed) W. LOCKWOOD MARSH, Lt.-Col.

Hockering Gate, Woking.

Army Manoeuvres.

The following notes referring to the work of the R.A.F. in the forthcoming Army manœuvres are taken from *The Daily Telegraph* of Sept. 7, with due acknowledgments :—

The Royal Air Force units which will co-operate in the training will include some of the squadrons which are to take part in the Army manœuvres—the big three days' battle on Sept. 22-24 over a region contained within the points Reading, Devizes, Blandford, and Petersfield. For divisional training the Air Force squadrons will be those permanently associated with the respective divisions. They are No. 4 Sqdn. (Bristol Fighters), attached to the Second Division, using an aerodrome at Odiham; No. 13 Sqdn. (Bristol Fighters), attached to the First Division, using an aerodrome at Somerton; No. 2 Sqdn. (Bristol Fighters), attached to the Fourth Division, and operating at Worthy Down; and No. 16 Sqdn. (Bristol Fighters), attached Third Division, and with an aerodrome at Old Sarum. There will also be engaged a special flight from the Army Co-operation School, which will work from Upavon with the Cavalry Division. All except No. 16 will for this training have to move from their permanent stations. No single-seater fighter squadrons will be engaged, nor any bombing squadrons, the training being solely that of Army co-operation. Approximately the personnel strength of each squadron is 25 officers and 150 other ranks, with nine machines and reserves. During divisional training the Royal Air Force will attend to its own supplies, but during Army Manœuvres the Army will take entire charge.

In divisional training there will be no "battle," and the machines will not carry distinctive marks. On occasion one flight of a squadron for some local operation may be on one side, and another flight of the same squadron may be on the other. But for the "battle" at the end of the month aeroplanes working with the Western Force will be coloured red as regards the fuselage, the upper surface of both planes, and the under surface of the lower plane. The aeroplanes of the Eastern Force will not carry a distinguishing mark. During these operations no aircraft other than those engaged will be permitted to fly in the manœuvres area.

All the Army co-operation machines are equipped for radio telephony, which enables a pilot to speak to his squadron leader or to a ground station, and makes oral communication easy over a range of many miles. The complete apparatus carried by each machine is contained in a box only 18 in. square. During the divisional exercises as well as during the manœuvres all the methods employable in actual war will be used, except, of course, that no ball ammunition will be fired. No bombs or dummy bombs will be dropped. Photographic reconnaissance will play a big part, the latest contrivances being used, and in the "battle" itself the results determining or helping to determine the course of action. Army co-operation has many sides, including close reconnaissance and what formerly were known as contact patrol and forward inter-communication into battle.

The manœuvres are to be largely a battle of movement, and the work of aeroplanes in co-operation with cavalry is expected to be extremely interesting. Much technical advance has taken place since the war, and many theories are to be tried out in connection with new mechanical contrivances and their application under as realistic conditions as can be arranged, and with a system of umpiring which will be far in advance of any hitherto attempted in any country. The chief Royal Air Force umpire will be Wing Cdr. J. T. Babington, D.S.O., who will be assisted by Sq. Ldr. R. H. Peck, O.B.E. There will be an air umpire with each division and cavalry division, one with each infantry and each cavalry brigade, and six on each side for duty with searchlights.

The Royal Air Force will be represented on the directing staff of the manœuvres by Air Vice-Marshal T. I. Webb-Bowen, C.B., C.M.G., Wing Cdr. T. L. Leigh-Mallory, D.S.O., and Sq. Ldr. E. A. Beaulah, who will be members of the Conduct of Operations Section. In the Collation and Criticism of Reports Section the Royal Air Force will be represented by Wing Cdrs. A. S. Barratt, C.M.G., M.C., and R. L. Gossage, D.S.O., M.C.; whilst Major-General E. B. Ashmore, C.B., C.M.G., and Capt. M. B. G. Butterworth will represent air defence or anti-aircraft batteries. Air Chief Marshal Sir Hugh Trenchard will be present throughout the manœuvres.

A Commercial Seaplane Competition.

On Aug. 20 a *Concours d'Hydravions de Transport*, organised by the Aero Club de France, in conjunction with the Ministry of Marine and the Under-Secretary of State for Aeronautics, opened at St. Raphael.

This competition, open only to French aircraft constructors, has attracted 11 entries representing seven firms, as follows :—

F. Villiers (one machine) : Length, 11.5 m.; span, 14 m.; surface, 54 m².; weight empty, 14.20 kgs.; engine, 450 h.p. Lorraine-Dietrich.

Shreck F.A.B. (three type 21 amphibians) : Length, 10.6 m.; span, 15.4 m.; height, 4.2 m.; engines, two fitted with the 450 h.p. Lorraine-Dietrich, and one with the 450 h.p. Hispano-Suiza; pilots, MM. Laporte and Paumier and Capt. Pelletier Doisy.

Marcel Besson (one type 26 type H.B.2) : Length, 12.2 m.; span, 15 m.; weight empty, 1,600 kgs.; engine, 400 h.p. Lorraine-Dietrich.

C.A.M.S. (one type C.A.M.S. 33C.) : Length, 13.27 m.; span, 17.62 m.; surface, 93 m².; weight empty, 2,600 kgs.; engines, two 260 h.p. Hispano-Suiza in tandem.

Société Provençale de Constructions Navales (two three-engined flying boats, type Météore 63) : Length, 12.95 m.; span, 21.2 m.; surface, 103 m².; weight empty, 2,500 kgs.; engines, three 180 h.p. Hispano-Suiza each.

Loiré et Olivier (one LeO H.134 and one LeO H.15). LeO H.134 : Length, 12.7 m.; span, 16 m.; height, 3.96 m.; surface, 58 m².; engine, 450 h.p. Lorraine-Dietrich. LeO H.15 : Length, 16.95 m.; span (top), 28.1 m., (bottom), 20.5 m.; height, 16.11 m.; surface, 136.24 m².; engines, three 380 h.p. Gnôme-Rhône Jupiters.

Farman (one machine) : No particulars available.

All these machines, with the exception of the C.A.M.S 33C., are new.

U.S. Aviators for Morocco.

The Paris correspondent of *The Daily Telegraph*, in a communication dated Aug. 5, states :—

The American airmen who have volunteered for service with the French at the Morocco front left the Berget Aerodrome this afternoon.

The party, which was organised by Col. Sweeny, includes Lt.-Col. Parker, Capt. Granville Pollock, Lt.-Col. Kerwood, Capt. Holden, Capt. Weller, Capt. Bullen, Capt. Paul Rockwell, and Maj. William Rogers. As a result of engine trouble the machine piloted by Capt. Clausel returned to the aerodrome, but was able to make a restart very soon afterwards. On reaching Casablanca the airmen will change into the uniform of the Sultan of Morocco's Flying Corps and will then proceed to the front on active service.

The Paris correspondent of *The Times* states that a luncheon was given on July 30 at the Cercle Inter-Allié, in Paris, in honour of the American airmen who were leaving for Morocco. M. Painlevé presided, and M. Briand, M. Laurent-Eynac, M. Bouillon and General Jacquemot were among those present.


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THE SAN FRANCISCO-HAWAII FLIGHT.

An attempt by two United States Naval flying boats to fly from San Francisco to Hawaii, a 2,100 miles non-stop flight, began on Aug. 31.

At 6.10 on the following morning the P.N.9 No. 1 had covered half the distance, flying at an average speed of 71 knots.

The second machine made a forced landing about 300 miles from San Francisco owing to failure of oil pressure. She was towed into San Francisco by a U.S. destroyer.

The first machine was again reported at 4.12 p.m., on Sept. 1, when a message was received from its pilot to say that his petrol supply was practically exhausted. A destroyer, a minesweeper, and a seaplane tender rushed to the rescue, but failed to locate the machine. The search continued all th next day but without success. The machine is thought to have come down about 150 miles from Mauii Island.

THE ADVANCEMENT OF CIVIL AVIATION.

[The following interesting notes have been received from a well-known British pilot who was lately in Amsterdam.]

I cannot refrain from writing to you in order that you may gain some idea as to the "move Fokker gets on" in comparison with our Aircraft Constructors in England.

Exactly five weeks ago to-day, Saturday, Sept. 5, I heard an interesting discussion between Fokker and Plesman regarding the respective advantages of single, twin and three-engined machines, the outcome of which was that Fokker decided to construct one of the last-named type.

Although he had no experience of three-engined machines, he completed one last Friday night, and to-day, Saturday, five weeks to the day after deciding to construct one, he was himself testing it *in the air*.

The machine is really a modified F.VII fitted with three Wright air-cooled engines of 200 h.p. The installation is absolutely perfect in its simplicity, and Fokker is convinced that the aeroplane will fly with full load with one engine alone. The total weight of the machine empty is 2,000 kg. and the load to be carried is identical with that of the F.VII. In a few days Fokker is bringing this machine to England.

My reason for sending you these facts is that as I personally was so deeply impressed with the immense energy of this constructor, I felt that if you draw attention to it in THE AEROPLANE our constructors might be persuaded to produce new types a little more rapidly than has been their practice hitherto.

[The foregoing notes represent a point of view which has to be considered. At the same time those who think with the writer must remember that whereas Mr. Fokker has a free hand to build what he likes and fly it where he likes, the British manufacturer has to spend months in getting his new designs approved by the pseudo-experts of the Air Ministry, and then, after the machine is built, further weeks are wasted in putting the machine through tests. Consequently every new type of British aeroplane is subjected to official delays which add anything from three to six months, or even a year, to the time from its inception till it can acquire an Airworthiness Certificate, and be flown away from a certified aerodrome.

That is why one of our leading aircraft constructors, who is busy on orders for standardised aeroplanes for the Air Ministry, remarked that the commercial construction of aeroplanes pays better than the construction of commercial aeroplanes.—C. G. G.]

AN (AD)ASTRAL BODY.

So secret is the secret Schneider Trophy Committee, to which secret reference was made in a secret paragraph in this paper last week, that all of its secret members except one have secretly gone off on his secret summer holidays to secret destinations. Consequently, at this most important stage of affairs this astral body of secret aviation stars cannot even be collected together to breathe forth those innermost secrets of its collective and secret heart for which the aeronautical community is waiting.

It is well to remember that this Committee was secretly appointed to deal, among other things, with the issuing of information about the Schneider Trophy machines. Therefore if the Secret Committee is annoyed at what is said and published secretly, one fears that it will have to be content by continuing to be annoyed in secret.

One asked the printer whether he would mind setting this paragraph in a whisper, but he tells one that that sort of type is also secret.—G. D.

FRENCH ENTRIES FOR AMERICAN RACES.

Although unfortunately no British aircraft builders have been able to send machines to compete in the Meeting at Mineola, Long Island, U.S.A., in connection with the Race for the Pulitzer Trophy, there is interest in recording that European aircraft will at any rate be represented there. Mr. R. Campbell Wood, Chairman of the Aviation Committee o the American Legion in Paris, intimates that, acting in co operation with Mr. Sidney B. Veit, President of the Pari Chapter of the National Aeronautic Association of America he has been able to make arrangements whereby the Bregue Company will ship two of their 19A.2 type observatio machines to the States to compete in the Liberty Engin Builders' Race for Two-Seater Military Machines on Oct. 8

One is glad to hear of this entry because the National Aero nautic Association of America has always done its best to mak the Races at the Pulitzer Meeting truly international. The pit is that we were unable to send over our latest two-seater— which according to a well-informed daily paper does 180 m.p.h But unfortunately this machine is still so much on the Secre List that officially it does not exist.

A NEW SPEED RECORD.

On Aug. 29, M. Fernand Lasne, flying a Nieuport-Delage 4 single-seater biplane (450 h.p. Hispano-Suiza engine), ove the Etampes—Villesauvage—La Marmogue circuit, beat, sub ject to official confirmation, the speed record over 1,000 km distance. He covered this distance in 4 hrs. 1 min. 10 secs. at an average speed of 248.7 km.p.h. (roughly 155.5 m.p.h.) The former record was held by M. Doret, who, flying a Dewoitine D.1 monoplane (300 h.p. Hispano-Suiza engine) covered the 1,000 km. at an average speed of 221 km.p.h.

FIRE-SPOTTING FROM THE AIR.

The Berlin correspondent of *The Daily Telegraph*, in a mes sage dated Sept. 3, states :—

The mysterious epidemic of incendiarism which broke out here some days ago has assumed such serious dimensions that the police have decided to fight it by aeroplanes. Two machines will circle over the city at night and report by wireless any fires that may occur. In addition watchers, provided with maps and field-glasses, are to be stationed on all Berlin's towers for the same purpose. The reward of 3,000 marks which was offered for the detection of the culprits has been increased to the unusual figure of 10,000.

AEROPLANE CLUBS.

THE SOUTHERN LIGHT AEROPLANE CLUB.

[The following notes on the Southern Light Aeroplane Club have been compiled specially for THE AEROPLANE.]

I have to-day visited the new "Southern Light Aeroplane Club's" Headquarters at Portslade. The Club has been founded by Mr. E. Wallis, an old seaplane test pilot, Mr. Cecil Pashly, the pre-war pilot, and Mr. F. Miles, a young and keen boy. They have got the old R.A.F. aerodrome at Shoreham, and one shed.

The machines in hand at the moment consist of one 80 Le Rhône Avro (504K), and a most interesting biplane with a 6 h.p. engine, which is called the Gnat. This machine they have constructed entirely on their own, with the exception of the engine.

It is a single-seater biplane, which it is claimed will be able to be sold at £220 complete.

The Club itself is getting tremendous local support, and the membership grows every day. The Club has been promised the support of Captain the Viscount Curzon, M.P., R.N.V.R., and Lieut.-Commander Cooper-Rawson, R.N.V.R., M.P., the member for Brighton.

The Air Ministry has refused them any assistance and says that as only six clubs are authorised, it can only give them its good wishes. The whole expenses are being provided by local enthusiasts.

It is worthy of note that four members of the London Aeroplane Club have joined the Southern Club already.—L. G. P.

[Personally one is convinced that such a club as the one described is likely to prove more valuable than any of the Air Ministry Clubs, which seem to have about 100 members per machine. Somehow it seems that for these clubs to have any success, a miracle, on the line of the five loaves and two small fishes, will have to be performed. In this connection the gathering of fragments in twelve baskets seems apposite.]

THE SEVEN AERO CLUB.

Besides the Southern Club, a club well worth considering seems to be the Seven Aero Club. This is composed of R.A.F. Officers and Reserve officers, and it is stipulated that there shall be one aeroplane to every seven members.

A comparatively heavy subscription is charged, but beyond that only the bare cost of petrol and oil is charged, and there is a fund to pay for the cost of forced landings.

The Seven Club has been running now for two years (quietly) and it may be remembered that it entered a machine for the last Lympne races. The Club has now bought the Short Satellite, which it is equipping with a new and very promising type of A.B.C. engine, and it has also acquired a Bristol Cherub, to which it is fitting a suitable aeroplane.

The moving spirit is Flt. Lt. Boyes, and the equally moving figure-head, whose weight also tells, is Sq. Ldr. The Lord Edward Grosvenor.

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PERFORMANCES AT LYMPNE.

The Royal Aero Club has recently issued in tabular form complete details of the times taken in all the races and contests at the recent Lympne Race Meeting by every machine taking part. As these figures are given for each completed lap flown they occupy some very considerable amount of space, and it is therefore not proposed to publish them in full. Some of the more interesting information which can be obtained from them has, however, been extracted hereafter.

The races at Lympne were all made over a 12½ mile circuit. Tests were made in addition over a reduced circuit of 16 2-3 km., three laps whereof gave a 50 km. course, and over a straight 3 km. course for the purpose of establishing certified performances for light aeroplanes under standard conditions. Machines which can by no means be classed as light aeroplanes took part in some races, but as a 12½ mile circuit rarely gives a heavy machine a fair chance of developing its real maximum speed, the figures available are of greater real value in the case of the light aeroplanes, which will be considered first.

The fastest light aeroplane round the standard 12½ mile circuit was the Cranwell monoplane, G-EBMC. This machine's fastest lap was completed in 8 min. 18 sec.—a lap speed of 90.5 m.p.h. This was the last lap of the International Race, and last laps were in general completed in a shorter time than intermediate ones—probably because the turning conditions are less stringent in this case. The fastest intermediate lap, made by the same machine, took 8 min. 24 sec., and several were completed in 8 min. 25 sec. 8 min. 24 sec. represents a lap speed of 89.4 m.p.h. The average of four runs over the 3 km. course by the same machine gave a mean speed of only 86.9 m.p.h.—a distinctly curious result—for the 3 km. speed is taken on the straight and eliminates the effect of cornering. It should therefore be distinctly higher than any circuit speed. The explanation appears to be that there was an appreciable side wind over the 3 km. course, and that the effect of a wind at right angles to a straight course may be much more than the effect of a steady wind of the same strength during a flight round a circuit. Over the 50 km. course (three laps of a triangular circuit) the speed was still lower—84.2 m.p.h. As the machine averaged 86.9 m.p.h. over the whole 100 miles of the Grosvenor Cup Race, 87.3 over 50 miles in the Private Owners' Handicap and 85.4 m.p.h. in the 100 miles International Handicap it is obvious that the 3 km. and 50 km. courses were flown under conditions which did not permit of an accurate determination of true maximum speed. All things considered, it seems safe to credit the Cranwell monoplane with a true top speed of between 95 and 100 m.p.h., in its present form, and to expect that with further tuning up and one or two obvious modifications a speed of over 100 m.p.h. will easily be reached.

The second fastest light aeroplane on the standard 12½ mile circuit was the Pixie II, G-EBKM, with a final lap in the International Handicap of 8 min. 42 sec. = 86.2 m.p.h., and a fastest intermediate lap in the same race of 8 min. 48 sec. = 85.2 m.p.h. On the 3 km. course the Pixie II averaged 83.5 m.p.h.—again a lower speed than that achieved on circuits, and over the 50 km. course one of 85.4 m.p.h. Th low speed on the 3 km. course may again be traced to th effect of a strong side wind. It will be noticed that on th 50 km. course the Pixie II was faster than the Cranwell mono plane, and that her speed on this course more nearly equal her best speed round the standard circuit than does that o the Cranwell machine. This would indicate superior corne ing on the part of the Pixie, which naturally would give he an advantage over the shorter circuit.

The next in order of speed for the standard lap was th R.A.E. Hurricane, G-EBHS, with a fastest lap (12½ miles in 9 min.—83.4 m.p.h. No figures are available for thi machine over the shorter courses. The Hurricane average 81.2 m.p.h. in the Grosvenor Cup Race, and 81.5 in Privat Owners' Handicap, so that the fastest lap speed may here as in other cases, be taken as a fair indication of he real top speed.

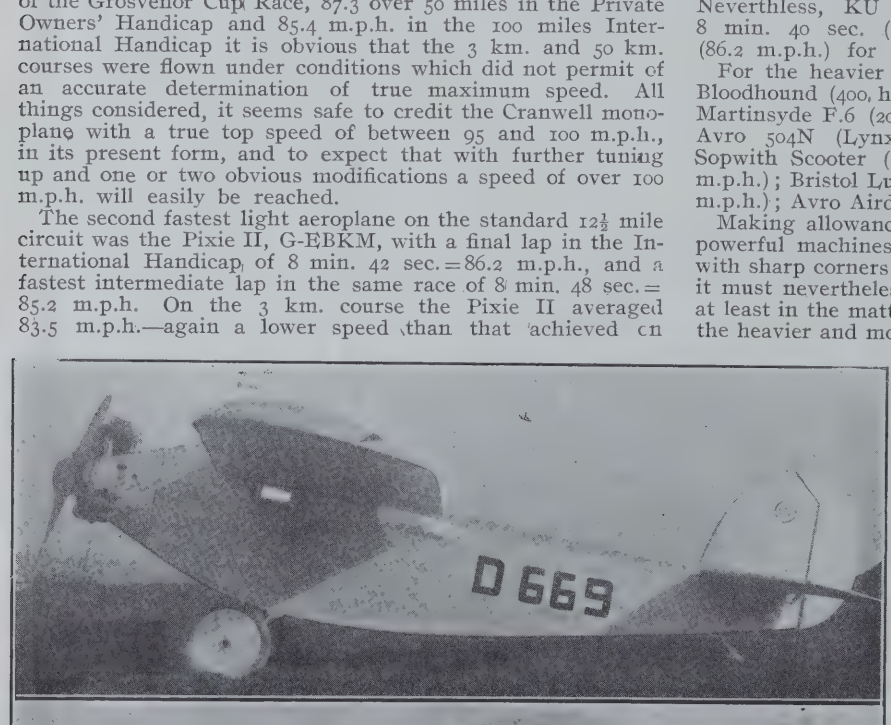
The A.N.E.C., G-EBIL, which may be considered with th three above as definitely a racing type of light aeroplane made its fastest lap in 9 min. 12 sec.—81.7 m.p.h. On th 50 km. course, however, it averaged 83.26 m.p.h. As thi machine had serious airscrew trouble during the meetin these figures cannot be regarded as a guide to her rea speed, which may be appreciably higher than they suggest

Following these four "racing" light aeroplanes the Beard more Wee Bee is the fastest of the light aeroplanes with best lap time of 9 min. 23 sec.—or just 80 m.p.h. The Sop with Cygnet comes next with 9 min. 49 sec. (76.4 m.p.h.) followed by the Bristol Brownie, 10 min. 23 sec. (72 m.p.h.) the D.H.53 (A.B.C. Scorpion), 10 min. 24 sec. (71.8 m.p.h.) the D.H.53 (Blackburne engine), 10 min. 42 sec. (70.2 m.p.h.) the Avro Avis, 11 min. 11 sec. (67.2 m.p.h.), and finally th Pander, 12 min. 58 sec. (58 m.p.h.). None of these slowe machines, except the Pander, flew over either the 50 or th 3 km. course. The Pander averaged 66.2 m.p.h. for tw trips on the 3 km. course, but in all probability the bes lap speeds will form the most reliable guide to the relativ speeds of all types.

Outside of the light type, the two D.H. Moths come as a intermediate class. There was very little indeed betwee the two, but G-EBKT, flown by Mr. Cobham, seemed con sistently slightly faster than G-EBKU, flown by Mr. Broad Neverthless, KU has the fastest lap to its credit wit 8 min. 40 sec. (86.5 m.p.h.), as against 8 min. 42 sec (86.2 m.p.h.) for KT.

For the heavier machines the fastest laps were :—Bristo Bloodhound (400 h.p. Jupiter), 5 min. 53 sec. (127.4 m.p.h.) Martinsyde F.6 (200 h.p. Viper), 7 min. 8 sec. (105 m.p.h.) Avro 504N (Lynx engine), 7 min. 26 sec. (101 m.p.h.) Sopwith Scooter (130 h.p. Clerget), 7 min. 39 secs. (96. m.p.h.); Bristol Lucifer (100 h.p. Lucifer), 7 min. 53 sec. (95. m.p.h.); Avro Airdisco, 8 min. 39 sec. (86.8 m.p.h.).

Making allowances for the fact that the heavier and mor powerful machines will tend to lose more on a short course with sharp corners than should the lighter and smaller types it must nevertheless be recognised that the light aeroplanes at least in the matter of speed, compare remarkably well with the heavier and more powerful types.



TWO NEW L.F.G. MACHINES.—Top the V.44 (Bristol Lucifer engine), an bottom, the V.40 (Siemens Halsk 75 h.p. engine). These machines, which were described and illustrated in othe views in "The Aeroplane" of Sept. 2 are used for school and joy-riding pur poses.

Their most interesting point is the fact that they are of an un usual form of metal structure. Wing spars and other heavily-stressed members are of a non-corrosive H.T. steel, and the covering and less highly stressed parts are of a new light alloy known as Lantal.

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AERONAUTICS AT THE B.A. MEETING.

Research and Progress.

Mr. R. V. Southwell, who until very recently was in charge of the Aerodynamics section of the N.P.L., read a paper before the British Association on Friday, Aug. 28, dealing with aeronautical problems. No complete report of this paper is available, but from an abstract which was given in *The Times*, it would appear that Mr. Southwell has taken about the earliest possible occasion, after dissociating himself from a Government-supported institution, to unburden his mind as to the dangers which the present system of official control of aeronautics entail.

He said that in aeronautics, which had never paid its way, but had grown in an artificial atmosphere of Government subsidy, much time and money might be wasted without the fact being glaringly apparent. Many well-disposed, but less well-informed persons—particularly in Parliament—imagined that progress was merely a matter of money, that technical advance was a marketable commodity, purchasable at so much per £1,000. No view could be more fallacious. Unless the programme of research and development were well conceived additional money might do more harm that good.

As research and development was financed by Government it was of the first importance that public opinion in regard to aeronautics should be well informed. It might even prove that such an informed public opinion might be essential to continued progress. What aeronautics needed most was to settle down to steady progress along natural lines, and not in the direction of stunts.

Referring to the helicopter, if the Government really wanted a helicopter, he saw no reason why they should not have it, provided that it adopted a reasonable procedure for getting it. He did not think that a prize competition was a reasonable way of attaining it. The problem of its stability must be attacked by systematic research before anything could be expected of this class of aircraft, and such research ought not to be financed by, and kept secret for, the private inventor. If the helicopter had a military value—which he doubted—the knowledge obtained would be of national value, and should be treated accordingly. Such problems should be referred to the Research Committee, and the professional designer.

The high-speed aeroplane, on the other hand, was a fit subject for prize competition. Year by year the best designing firms of the country should be induced to bring all their knowledge and experience to bear on the production of clean designs. The designer should not have to complain—as he had at present—that when he had built a machine of clean design, a horde of "experts" descended upon the helpless machine, and bedecked it with gadgets. The way to discover the limits of speed was to go for speed "bald-headed." Of course any aeroplane required for service would have to sacrifice something of its speed capacity to armament, etc., but that was no reason for making these sacrifices in an experimental machine. Rather the reverse.

Safety, comfort and reliability were the essentials in civil aviation. Until these could be guaranteed flying would attract only the few. High speed militated against all three of these essentials, besides being extremely costly The lower we could afford to make the top speed of an aeroplane, the lower would be its landing speed, upon which safety primarily depended. An air speed of over 80 m.p.h. would suffice to save time as against other forms of transport. Indeed, once the aeroplane or the airship was established as economic and reliable it would hardly have a competitor. Was research not justified then in placing safety first among its aims and in seeking to satisfy rather than to create a demand?

No unnecessary risks must be taken in the design of the new airships with which we hoped to fly to India in 192 He wished the public could be induced to regard the buil ing of these airships as a great adventure, for that was wh it was. The goal was the ability to fly to India in comfo in the space of 100 hours, and the problem was that designing and constructing ships of vast capacity with litt help from past experience by sheer hard thinking and ha work. Having embarked on a definite programme of th construction of two large ships, common sense suggested th for the next two years we should leave the design staf in peace to do their best, and that silence on their pa while their plans developed was a healthy sign.

Incidentally Mr. Southwell expressed the opinion that th wildest of aeronautical predictions were those which told the giant aeroplane of the future. He did not suggest that w had reached a limit in the size of aeroplanes, but it wa idle to talk gaily of size as an advantage which only ou ignorance at present withheld from our grasp.

The Flying Boat.

On Wednesday, Sept. 2, Mr. O. E. Simmonds read a pape concerning the development of flying boats. He said tha the early pre-war conception of the flying boat was due t the aeronautical, rather than to the marine, community, an that therefore early types had possessed a reasonably sati factory aero structure, but their marine functions were prim tively treated, and, as a result, the hulls were fragile, u seaworthy, and of high resistance.

Eventually the system of making a boat which would fl (a system characterised by the author as more logical tha that of building an aeroplane which would float), received du attention, and, by 1918, both marine and aeronautical fun tions were given full and separate consideration, wit the result that the flying boat was now a sound engineerin proposition.

Operationally the flying boat could now be treated as boat when on the water, and could be left afloat for week on end.

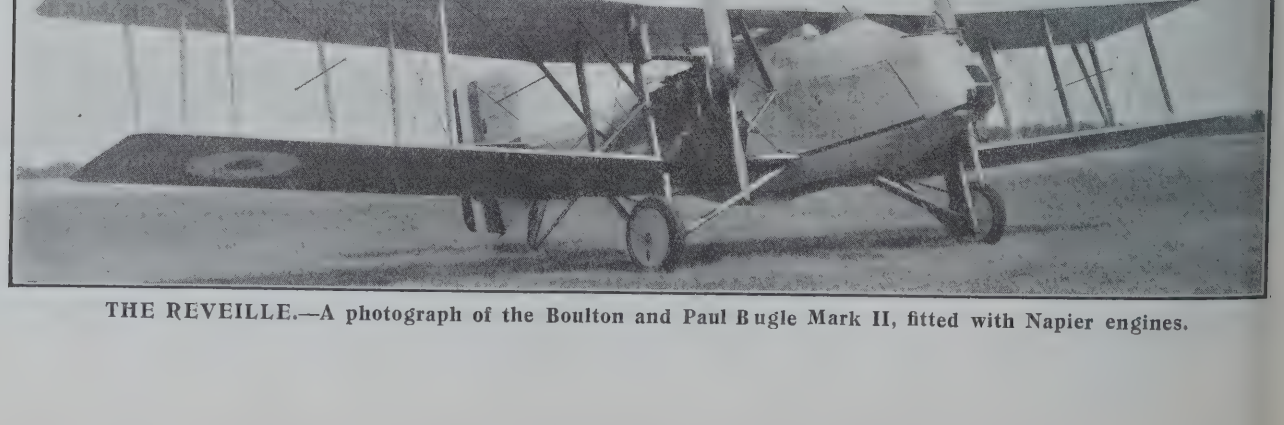
Such boats of large size could be fitted with an auxiliar engine and a water propellor for manœuvring; in emergenc they had been sailed, and experience showed that it wa possible to manœuvre a properly-designed flying boat unde its own power in very congested waterways, as easily as yacht could be manœuvred. So far, boats of up to 30,000 lbs total weight had been produced, and further progress coul confidently be expected.

Mr. Simmonds then proceeded (in spite of Mr. Southwell' warning) to certain predictions as to the large flying boa of the near future. As a type which he thought could b expected to come into being within the next decade, h described an all-steel, thick-winged monoplane of som 6,000 sq. ft. of surface and 220 ft. span, fitted with two 3,00 h.p. power plants imbedded in the wings, weighin 100,000 lbs. loaded, which should be capable of carrying 10 passengers for 1,500-mile stretches, at 100 knots.

By slightly reducing the number of passengers, Americ could be reached in 36 hours, with one stop at the Azores

In a discussion which followed this paper, Wing Cdr. T. R Cave-Brown-Cave expressed his doubt as to whether passen gers would ever be willing to travel for 36 hours at a stretc in a machine such as Mr. Simmonds had forecasted, and re fused to believe that the flying boat could ever compete wit the airship for trans-oceanic passenger traffic.

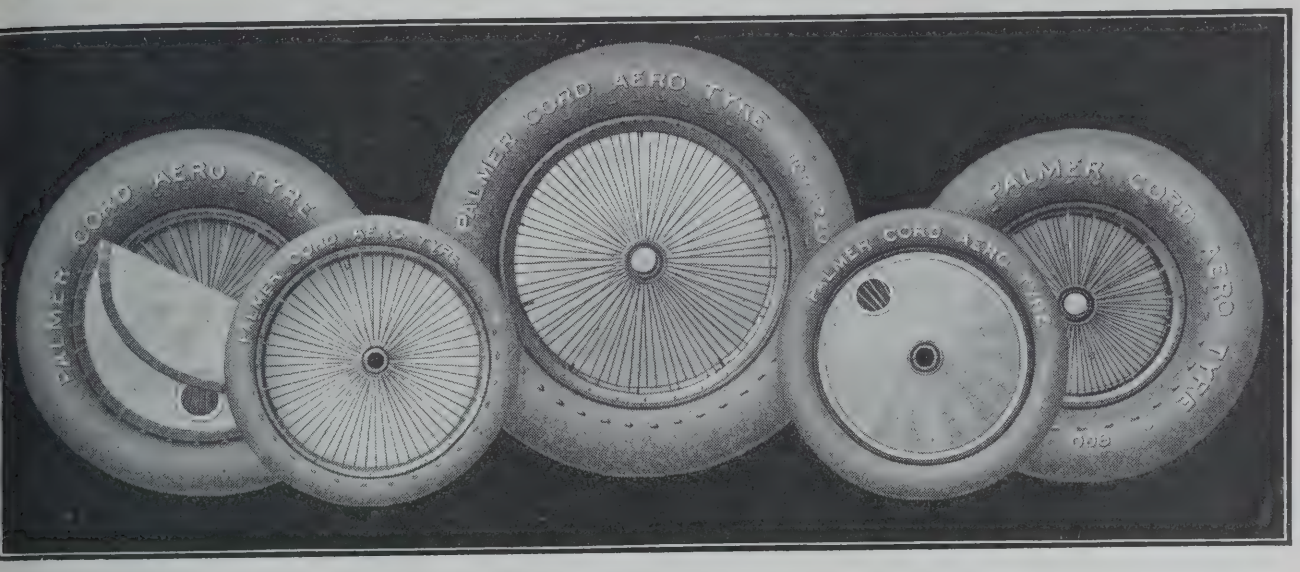
[Without any desire to dispute the probability that aero planes having qualities such as these postulated by Mr. Simmonds will be produced in the near future, one is in clined to agree with Mr. Southwell as to the inadvisability of prophecy as to what we shall be able to do in this direc



THE REVEILLE.—A photograph of the Boulton and Paul Bugle Mark II, fitted with Napier engines.

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Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line	Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line	Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m			m/m	m/m	m/m			m/m	m/m	m/m
375×55	168	111.12	25.4	Central	700×100	99	178.	38.89	132/46	1000×150	201	185.	60.32	125/60
300×60	16	111.12	25.4	Central	,,	112	150.	38.09	Central	,,	210	185.	60.32	Central
,,	17	72.39	12.7	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	,,	147	178.	55.	Central	,,	149	185.	55.	Central
,,	138	130.	38.09	Central	750×125	77	178.	44.45	132/46	,,	155	220.	66.67	Central
575×60	21	160.	28.	Central	,,	92	185.	55.	135/50	,,	166	185.	55.	125/60
,,	34	150.	31.75	104/46	,,	95	185.	55.	Central	900×200	107	185.	55.	Central
,,	111	150.	38.09	104/46	,,	96	178.	55.	132/46	,,	108	185.	55.	125/60
600×75	21	160.	28.	Central	,,	99	178.	38.89	132/46	,,	128	220.	66.67	Central
,,	34	150.	31.75	104/46	,,	112	150.	38.09	Central	,,	137	250.	80.	Central
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50	,,	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	,,	85	185.	55.	Central	1100×220	134	220.	66.67	Central
,,	79	178.	44.45	Central	,,	161*	185.	55.	135/50	,,	136	250.	80.	Central
,,	100	178.	38.09	132/46	,,	163*	185.	66.67	135/50					
,,	101	178.	31.75	132/46	,,	169†	185.	55.	135/50	1250×250	133	250.	80.	Central
700×100	77	178.	44.45	132/46	,,	211*	185.	60.32	135/50	,,	154	304.8	101.6	Central
,,	92	185.	55.	135/50	1000×150	131	220.	66.67	Central	1500×300	115	304.8	101.6	Central
,,	95	185.	55.	Central	,,	150	185.	55.	Central	,,	126	304.8	152.4	Central
,,	96	178.	55.	132/46	,,	167	185.	55.	125/60	1750×300	139	400.	152.4	Central
					,,	174	250.	80.	Central					

**Wheels Nos. 161, 163 and 211 are of stronger type than the other wheels for 800 × 150 tyres.*
†Wheel No. 169 is fitted with Ball Bearings.

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tion in the future—particularly before such a body as the B.A. At the present moment the development of aeronautics on the practical side may be regarded as unsatisfactory on two main counts. One is that we are not building aircraft which are as good as they might be in the light of existing knowledge and experience, the other is that we are not using such aircraft as we have already produced to the best advantage.

To some very considerable extent, both these matters ar largely the result of general public ignorance on the subje of what the aeronautical engineer and the aircraft operat could do were he given a fair chance, and it is a mistake attempt to appeal for public support and encouragement b a picture of what we hope to be able to do in ten year time when there is so much that might be done now given the right kind of public interest.—W. H. S.]

AMERICAN ENGINE PROGRESS.

During recent years, the American aero-engine constructors have produced a number of new types of aero-engines, which by their performances in many record-breaking aeroplanes, have proved themselves to rank with—if not to rank ahead of—the best aero-engines produced in the rest of the world. They are evidently in no mind to rest on the laurels which they have already gained.

The new Packard 1A.1500 and 1A.2500 engines have already been described in these pages. Both these types have now been subject to test in the air on an extensive scale and are reported to be giving very satisfactory service. These engines are—on the maker's figures—lighter and more compact than any water-cooled engines of similar output yet in service in Europe.

The Curtiss Co., whose D.12 engine is so well known as the power plant of the most successful of American racing machines, have now under test an improved engine, of similar but improved, design, known as the V.1400. This engine is rated at 500 b.h.p. at 2,100 r.p.m., and the dry weight is given as 660 lbs.—1.32 lbs. per h.p. The V.1400 is said to have passed a 50-hours' trial without difficulty, at the first attempt.

Another new Curtiss engine is the nine-cylinder, air-cooled, radial known as the R.1454. This is rated at 400 b.h.p., 1,700 r.p.m., and weighs 736 lbs. The R.1454 is believed to be not unlike the Bristol Jupiter in many respects, and like the Jupiter, is fitted with a very interesting induction system. This engine is reported to develop appreciably more than its rated power, and to be notable for its smooth running. It has not yet passed its official tests.

The Wright Aeronautical Corporation, which absorbed the Lawrance engine business and has now a very considerable experience of the air-cooled radial in sizes of up to 220 h.p., has also produced a high-powered, air-cooled radial. This is known as the P.1, rated at 400 h.p., 1,650 r.p.m., for a weight of 840 lbs. complete with exhaust manifold. The P.1 is a nine-cylinder type with a bore and stroke of 6 inches by 6½ inches. Its most remarkable feature is its small over-all diameter—given as 47¼ inches. The P.1 has passed its type tests and has been flown with very satisfactory results.

Fuller information as to all these engines, together with illustrations, will, it is hoped, be available very shortly.

THE ROYAL AERONAUTICAL SOCIETY.

The R.38 Memorial Prize.

The Royal Aeronautical Society announce that intending competitors for the annual R.38 Memorial prize of twenty-five guineas, should send in their names, together with information as to the scope of their papers on or before Dec. 31, 1925, and that the latest date for the receipt of the papers themselves will be March 31, 1926

The Edward Busk Memorial Prize.

The Royal Aeronautical Society announce that intending competitors for the annual Edward Busk Memorial Prize should send in their names together with information as to the scope of their papers on or before Sept. 30, 1925, and that the latest date for the receipt of papers will be Dec. 31, 1925.

[The regulations for the above two prizes are generally similar. The R38 prize will be awarded for the best paper on some subject of a technical nature in connection with aeronautics, other things being equal, preference being given to papers relating to airships. The Busk prize will be awarded for the best paper of a technical nature in connection with aeroplanes (including seaplanes). Both prizes are open to international competition. Papers, which mu be in either English or French, should be typed and a cop retained. Successful papers become the absolute propert of the Society. Competitors must give a signed undertak ing that publication has not already taken place, and th the paper will not be communicated elsewhere until th Society's award is published.]

THE LINING OF BEARINGS.

The Hoyt Metal Co., of Great Britain, Ltd., well know as manufacturers of anti-friction or bearing metal of the ver highest class, have recently published a booklet entitle "Hints on Lining Bearings."

This publication is of a thoroughly practical nature, an certainly ought to be in the possession of everyone who pr poses to undertake the work of remetalling white-metal bea ings. It is by no means a mere puff of Hoyt brands of bea ing metals, but is rather a sound guide to workshop practic in this particular craft.

Copies of this work will doubtless be supplied readily t any responsible inquirers who will write to the firm Deodar Road, Putney, London, S.W.15, mentioning this not

WIRELESS FOR INTERCOMMUNICATION.

The display of the control of a formation of aeroplanes b wireless intercommunication between the formation leade and his subordinates in the air has drawn a good deal of a tention to the development of wireless for aircraft purpose The apparatus actually used by the R.A.F. has been develope by the R.A.F. Wireless Section itself, but wireless gear sui able for the same or similar uses has also been developed b the Marconi Company, who have given the whole subject wireless for aircraft an amount of attention which is litt short of remarkable when it is considered how limited th market for such apparatus may be.

The Marconi A.D.5 set is specially suitable for use in singl seat fighters, and the like, where light weight and compac ness of the apparatus is essential, and in which long, trailin aerials cannot be tolerated. The A.D.5 is a short-wave se and consequently can be used effectively with an aerial of ver limited proportion, thus making it possible to use a fixe aerial. The short-wave length has the further advantage relative freedom from interference by other transmission.

Transmitter and receiver are separate units, and thus eithe may be installed by itself if that is desirable. Both units ar remotely controlled, so that the set itself may be placed i any convenient position in the machine, provided, of cours that the control gear is within easy reach of the pilot. Th ability of the set is not of course confined to that of inte communication between machines in the air—it is equall effective for communication with a suitably-equipped groun station.

Full information as to this set can be obtained by respo sible aircraft constructors or operators, from the Marcon Company—whose enterprise in developing these specialise instruments deserves to be encouraged by all seriously con cerned for the development of flying.

AIR PUBLICATIONS.

The following publications have been received from the Ai Ministry :—

"Regulations for the Admission to the Royal Air Force Cadet College Cranwell." Air Publication 121 of 1925. 6d. net.

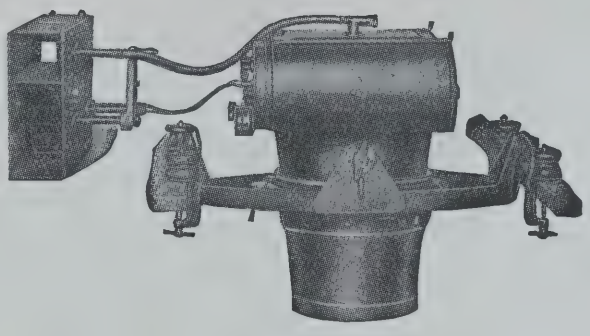
"National Health and Unemployment Insurance of Personnel of th Royal Air Force." Air Publication 980 of 1925. 2d. net.

"Provisional Regulations in Regard to the Entry and Training o Boys as Clerks in the Royal Air Force." Air Publication 1109 of 192 For official use only.

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per day.—Monday, 23; Tuesday, 23; Wednesday, 29; Thursday, 22; Friday, 22; Saturday, 22; Sunday, 13.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 58, passengers 330, freight 15 tons.

AIR UNION:
Paris—London: Machines 70, passengers 370, freight 18 tons.

K.L.M.:
Amsterdam—Rotterdam—London: Machines 24, passengers 90, freight 2½ tons.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES:

AERO TRANSPORT A.B.:
Berlin—London: Machines 2, passengers 4, freight £5,000,000 in bonds.

Total number of trips by British machines: 58, carrying 330 passengers. Foreign machines 96, carrying 464 passengers.

Comparative Figures:

For week ending Sept. 6:
Machines, 154; Passengers, 794; Crews, 221; Total personnel, 1,015.

Corresponding week, 1924:
Machines, 145; Passengers, 684; Crews, 177; Total personnel, 861.

Corresponding week 1923:
Machines, 139; Passengers, 636; Crews, 222; Total personnel, 858.

Corresponding week, 1922:
Machines, 135; Passengers, 433; Crews, 245; Total personnel, 678.

Corresponding week, 1921:
Machines, 104; Passengers, 356; Crews, 127; Total personnel, 483.

Corresponding week, 1920:
Machines, 129; Passengers, 285; Crews, 154; Total personnel, 439.

Croydon Notes.

There are all sorts of rumours of new machines for Imperial Airways Ltd. in the air. Unfortunately it is only the rumours that are in the air at present, and not the new machines or Imperial Airways Ltd. The Vickers Vanguard is incessantly expected, as it has been ever since the very early days of the Instone Air Line. The D.H.54 is also highly hoped for.

When things get a bit dull at Croydon someone brings the 54 over and says, "*Wouldn't* you like this nice aeroplane?" Everyone with one accord shouts in unison, harmony and parsimony, "*Yes.*" The pilot who brought it over re-emplanes, and in departing remarks something to the effect that the Air Ministry never hurries much and that everything comes to him who knows how to wait. But it is generally believed that "some day waiting must end."

Another rumour, which as a matter of fact is entirely true, is that Imperial Airways Ltd. have placed an order with Handley Page Ltd. for four W.8s, with Napier engines which will largely help to solve the machine problem for next year. It is true that the W.8 is of 1918 design and first flew from London to Paris in December 1919, piloted by the late Mr. Bager, but it is an excellent machine still. It is certainly second in performance to no twin-engined commercial machine in the world. Therefore it will do excellently as a stop-gap to bridge over the time in the dim future when the wonderful Argosies about which we have heard so much and on which the Directors of Imperial Airways seem to have put their very shirts, are a commercial flying proposition.

This is the first sensible thing that Imperial Airways Ltd. have done for some time. But, judging by their way of changing policy under stress of circumstance, or financial dictation, it often seems that "Dirigibles" would be a better term than "Directors" for the members of the Board of Imperial Airways Ltd., albeit they appear to function somewhat on the Mongolfier principles.

There is likely to be a slight delay in the appearance of the Handley Page Hampstead, the triple-Jaguar machine, as a slight accident in the shops caused the destruction of a wing, and this is now being replaced.

The all-metal Junkers monoplane paid another visit to Croydon Aerodrome last week, once again loaded with £5,000,000 in bonds by way of more reparations. Still the income tax does not seem to have gone down much as yet as a result.

Even the strongest eyes have not yet sighted a French aeroplane *en route* from Paris with a similar load of honesty. One could play rather a good game of "Sister Anne," watching for this machine from the Control Tower. But sufficient unto the day is the evil thereof.—G. D.

More World's Records.

On July 27, Engineer Grassé, chief pilot of the N.V. Nederlandsche Vliegtuigenfabriek (Fokker), beat the World's duration record carrying 1,500 kgs. (3,300 lbs.) of useful load, by remaining in the air for 3 hrs. 3½ mins. This flight also beats the duration record carrying a useful load of 1,000 kgs. (2,200 lbs.), and both these records have now been homologated by the F.A.I.

The machine used was the improved type of Fokker F.VII commercial monoplane (400 h.p. Liberty engine).

Both the records beaten were previously held by Lieu J. A. Macready, U.S.A.S., with 2 hrs. 14 mins.

Two Long-Distance Flights.

On Aug. 29, Capt. Radovitch, of the Yugo-Slav Flying Corp flew from Paris to Belgrade non-stop, a distance of 1,100 mile in 9 hrs. 25 mins. He was using a Breguet XIX (400 h.p Lorraine-Dietrich engine), one of a batch of 100 ordered b the Yugo-Slav Government.

On Aug. 31, M. Favreau, accompanied by a mechanic, fle from Paris to Madrid non-stop, a distance of 845 miles, i 6 hrs. 55 mins., on the Potez 25 biplane (450 h.p. Lorraine Dietrich engine), used by MM. Arrachart and Carol on the Round-Europe flight.

On Sept. 3, M. Favreau made the return flight from Madri to Paris non-stop, in 4 hrs. 20 mins. Aided by a strong fo lowing wind, his average speed on the return trip works ou at 195 m.p.h.—a very fine performance.

PERSONAL NOTICES.

DEATH.

CAVIS-BROWN.—On Sept. 4, at Lee-on-Solent, as the result of flying accident, Geoffrey Ashton Cavis-Brown, Flg. Off. (Hon. Flt. Lt.) R.A.F.

Mr. Cavis-Brown was a Lt., R.N., retired, and was granted a S.S comm. in the R.A.F. in July, 1923. After a long course at No. F.T.S., Netheravon, he was posted to the R.A.F. Base, Gosport, an attached to a Fleet Spotter Flight.

FORTHCOMING MARRIAGE.

CORYTON—HANBURY.—The marriage of Sq. Ldr. William Ale Coryton, M.V.O., D.F.C., and Miss Philippa Dorothea Hanbury, wi take place on Dec. 19 at Minstead.

MARRIAGES.

BARBOUR—CRUMP.—On July 15, at Barnwood Church, Gloucester Flg. Off. R. Stanley Barbour, 39 (B) Sqdn. (late Royal Irish Fusilier and 113 Sqdn., R.F.C.), to Olive Grace, only daughter of Mr. an Mrs. Dan Crump, of Gloucester.

JUNOR—TARRANT.—At Byfleet Parish Church, on Aug. 5, Mis Elsie Henrietta Tarrant, younger daughter of Mr. and Mrs. W. G Tarrant, of Lake House, Byfleet, was married to Flt. Lt. Hugh Robe Junor, R.A.F.

POLLARD—SWARBRICK.—On Sept. 5, Plt. Off. Alfred Oliver Pollard V.C., M.C. (and bar), D.C.M., R.A.F., son of Mr. and Mrs. J. A. Pollard of Tidbury, Wallington, Surrey, to Violet Irene, younger daughte of Mr. and Mrs. R. A. Swarbrick, of Elbury, Craven Avenue, Ealing, W

THRES—GAMBLE.—On Sept. 2, at Gamston, Retford, by the Rev F. B. Hawkins, M.A., Chaplain to the Duke of Newcastle, Leslie Walte Thres, D.F.C., elder son of Mr. and Mrs. H. W. Thres, Ilford, Essex to Barbara Mary, younger daughter of Mr. and Mrs. Arnold Gamble Gamston Manor, Retford.

BIRTH.

MEEK.—On Sept. 4, at 12, Osborne Road, Clifton, to the wife o Flt. Lt. K. A. Meek, R.A.F.—a daughter.

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INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. Grey

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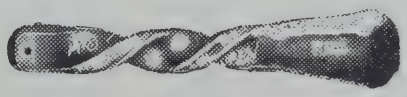
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Complete dual control is fitted and the incidence of the Tail Plane is variable when in flight by means of a hand wheel.

The engine (Wolseley "Viper" 210 h.p.) is extremely reliable, easy to control, and accessible. It is fitted with a hand starter operated from the cockpit.

The machine is very sensitive to the controls and carries out all evolutions and manœuvres cleanly and well. A feature of note is the quickness with which it takes off from water. Properly handled it can take off in approximately 20 seconds.

The undercarriage attachments are arranged so that either a land or sea undercarriage can be fitted, thus adapting the machine for use in either capacity. Anchor and mooring ropes are provided.

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SEPT. 16, 1925.

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ON THE SPIRIT OF THE AIR FORCE.

Mob psychology or mass psychology is an interesting thing. obody knows much about it, least of all the psycho- alytical-pseudo-scientists who profess to know most. And et mass psychology has been recognised by leading thinkers all nations as one of the most important factors in the istory of the world.

A blind unreasoning panic will lose a battle when an equally lind unreasoning enthusiasm might have caused the same oops to win it. And a comparatively trivial event will use mass psychology so to operate that it may change the hole course of an election on which the safety of a nation epends.

Most successful men, fighting men and statesmen, even ere politicians and shopkeepers, owe their success to their ility to recognise the direction in which is operating the rticular mass psychology which affects their affairs.

The greatest of them seem even to be able to calculate the sychological moment (using the phrase correctly, as an nalogy to a moment of inertia and not a moment of time), nd put forth their own efforts in connection with it in the ght quantity and at the right moment of time.

One has never believed in the late Abraham Lincoln's tch-phrase about Government of the People for the People the People, for obviously the People as such are incapable governing. But one does believe firmly in the much older ying that the voice of the People is the voice of God (*Vox opuli vox Dei*, for the benefit of those who prefer it in more less its original form).

When the people try to govern themselves they invariably ake a mess of it because such a minute proportion of human eings possess intelligence—which is fortunate for the in- lligent minority, who are thus enabled to make a living out the majority. But when the People as a mass get hold of idea, that idea is generally right.

Those who take the trouble to observe will notice that the oyal Air Force has definitely captured the imagination of e usually unimaginative English people and has impressed them the idea that it is in fact as well as in theory our rst Fighting Service. And in consequence the Great British ublic has taken the Air Force to its heart.

Aural Evidence.

One is moved to these remarks by the extraordinary en- usiasm with which a comparatively small detachment of e Air Force is received night after night by tens of thou- nds of people in the Stadium at Wembley. It is true that e two displays of training, the physical training display and e torchlight drill, given by the 400 R.A.F. recruits, are by r the most spectacular performances of the evening. But aking all due allowance for that fact, the applause with hich the airmen are greeted on their first appearance and at very available opportunity during their displays, has in it a ote which goes a good deal deeper than mere appreciation the beauty and precision of their movements.

The vast audiences seem to rejoice *with* the R.A.F., rather an at the spectacle as such. The spirit of the R.A.F. seems infect the onlookers, and to make each individual feel that he or she has actually a part in that wonderful display of rhythmic energy and endurance which is given by the recruits from the Depot at Uxbridge.

A Convincing Display.

One hopes most sincerely that everybody who is in any way interested in the Royal Air Force, or who has any appreciation of Air Power, will induce all his or her friends to go to the Stadium at Wembley and see this display before it ends with the present month. Not only does it inspire any British subject who beholds it, with pride and faith in the Air Force as the Empire's First Line of Defence, but it impresses visitors of other nations more than anything else which we can show them in this country.

Some few days ago one had the pleasure of taking to Wembley a young and very intelligent officer of the U.S. Army Reserve who has recently been touring Europe for some three months, and has seen most of what Europe has to show him. Some hours after the end of the show, when he had had plenty of time to lose the enthusiasm of the moment, he said that nothing that he had seen in Europe, neither scenery, buildings, spectacles, nor anything else, had impressed him so much as the Tattoo at Wembley and that of the whole of the performance there the two R.A.F. displays stood out above everything else, not merely as a beautiful spectacle but as examples of perfect training and discipline.

He himself has had a useful engineering education and has a distinctly mechanical bent of mind and the work of the R.A.F. appealed to him very largely because of its high mechanical efficiency. It struck him exactly as a new and perfectly finished piece of machinery would have done.

As a matter of fact one believes that it is very largely because of its mechanical nature that these displays of the R.A.F. are so perfect. The 400 recruits who performed, none of whom have had more than twelve weeks at the Depot, were all enlisted to be aircraftsmen and may therefore be supposed to possess mechanical minds.

In the early days of the Royal Flying Corps there were those who said that the civilian mechanic would never submit to being drilled. And unfortunately during the War 1914-18 there were a great many officers commanding stations and other units who held that drill was merely wasting the time of a mechanic—whether good, bad, or indifferent. In fact even to-day in some units the commanding officers regard drill not only as a nuisance to themselves, but as being definitely a waste of time, in that jobs in hand in the workshops have to be neglected while the mechanics are on the parade ground.

But the more intelligent officers and men both recognise that precision in drill indicates precision in the workshop and that the man who has learnt not to make a mistake on the parade ground is more likely not to make a mistake at the work-bench. Apart from which the man with an intelligently mechanical mind realises the value of "Law, Order, Discipline." He recognises that all mechanical efficiency depends on every piece of material.

And when once he understands that drill is necessary, not



THE MARCH PAST.—Air Chief Marshal Sir H. M. Trenchard, G.C.B., D.S.O., Chief of the Air Staff, taking the salute at a march past of the personnel of the Electrical and Wireless School R.A.F., Flowerdown.

only in the shape of physical training, for the good of his own body but in order that men in the mass may move with the least possible effort and in the greatest possible comfort, he does his drill at any rate with good will. Later on, when he begins to appreciate the meaning of *esprit de corps* and begins to take a pride in the Air Force as such, he thoroughly enjoys being one small piece of mechanism in any parade, simply because of the mechanical beauty of the movement and because of the effect which he knows they produce on the spectators. Consequently the more intelligent and more highly-skilled the mechanic happens to be, the better will be his deportment on parade.

To Whom the Praise?

The Royal Air Force has been singularly fortunate in securing at its very start, men who were capable of instilling these ideas into the Rank and File. Primarily thanks are due to the late Basil Barrington-Kennett, Lieutenant in the Grenadier Guards, who was appointed Adjutant to the Royal Flying Corps, when it was formed in 1912. He managed to acquire through the Department of Military Aeronautics at the War Office a small number of drill sergeants from the Brigade of Guards, and these N.C.O.s, most of whom are now commissioned officers of the R.A.F., either retired or on the active list, took in hand the job of persuading discipline into the heterogeneous collection of garage hands, young engineer mechanics, and entirely untrained civilians who were the first air mechanics in the R.F.C.

Unfortunately Basil Barrington-Kennett was killed comparatively early in the War as a Major commanding a battalion of the Guards. Despite every persuasion he decided that his first duty was to his old regiment, which had suffered heavily in those disastrous early days. And so B.-K. is only a memory to the older members of the R.A.F. instead of being one of our senior officers.

Nevertheless to him we owe much of that fine spirit which inspires the airmen of the R.A.F. to-day, for the old Guardsmen who came into the R.F.C. were chosen by him as individuals. They brought into the Flying Corps all the precision of the Guards and they themselves absorbed something of that elasticity which is characteristic of the Flying Services.

For the high efficiency on parade and the fine spirit of the men of the R.A.F. Depot to-day thanks are primarily due to Flt. Lt. Albert Wombwell, who throughout the War, despite his most strenuous endeavours to get himself sent overseas on active service, was kept at home, as somebody has said, teaching mechanics how to walk. His particular genius has taken the direction of proving to mechanically-minded men the afore-mentioned beauty of being a perfect part of a perfect machine.

In such a task the old-fashioned cast-iron drill sergeant would have been a dismal failure. Those old methods worked well enough when all that was needed was the ability to punch a pudden-headed rustic into the shape of a soldier who could do what he was told without thinking why he did it. But the R.A.F. recruit is obviously a man of a certain amount of intelligence or he would not want in the first place to become a mechanic in the Air Force. Therefore he has to be taught the meaning of the orders which are given to him and not merely the execution of those orders.

It is in this that Flt. Lt. Wombwell and the various serjeant instructors under him, men who have also been chosen for their tact as well as for their strength of mind and lung, have been so successful. They have wrought in spirit with all the recruits who have passed through their hands at the Depot at Uxbridge till they have felt, as Rudyard Kipling says, "the spell of ordered motion strong on them."

Away From The Depot.

The same spirit has pervaded ever since their beginning the Boys' Wing at Cranwell and the Training Establishment for Boys at Halton. A couple of years ago a detachment of boys from Cranwell gave an astonishingly fine display of drill and march discipline at the Royal Naval and Military Tournament at Olympia. Those boys did all their regular work in their schools and put in all the extra drill voluntarily in their own spare time. And so enthusiastic did they become that after they had returned to Cranwell from Olympi they actually petitioned their commanding officer that the might be allowed to continue to do this special display dri in their spare time for the sheer joy of doing it.

The unfortunate part of all this splendid training is tha some officers of the R.A.F. do not appreciate it at its ful value. A certain number of junior officers are apt to regar drill as a nuisance to themselves. A certain number o others, although they realise that drill is necessary to th proper handling of men in mass on the ground, are so kee on their workshops and on the handling of aeroplanes an engines that they regard drill as a hindrance to the amoun of flying done on their stations and so are apt to excus individual men and sometimes their complete unit fro drills and parades more often than is good for the spirit o the personnel. And there are others, mostly former nava officers or civilians who came into the Air Force during th War, who frankly regard drills as a confounded nuisance— rather on the principle of the philosopher who remarked tha work was the curse of the drinking classes,—in that after th necessary work of the station has been done in the way o keeping machines in fairly decent flying order and so fort they themselves like to go away and play somewhere or a any rate cannot be bothered taking an interest in an exercis which they regard as mere trimmings to what ought to b a work-a-day service.

On the other hand to their credit be it said there ar certain stations which take a pride in march discipline an drill efficiency. Only recently for example there was pub lished in this paper a photograph of a very smart Guard o Honour turned out by the R.A.F. at Spittlegate to receive th Duke of York at Grantham. And the photograph on th previous page of the march-past at Flowerdown shows th men of the R.A.F. very fairly.

One ventures to suggest, in all humbleness, that th Higher Authorities at the Air Ministry might make som little inquiry into which stations are smart on parade an which are not. And certainly junior officers, at any rate u to the rank of Flight Lieutenant, ought to be made to wor on the parade ground as a regular part of their daily routine A pilot ought to be able to drill a parade just as well as h can control an aeroplane.

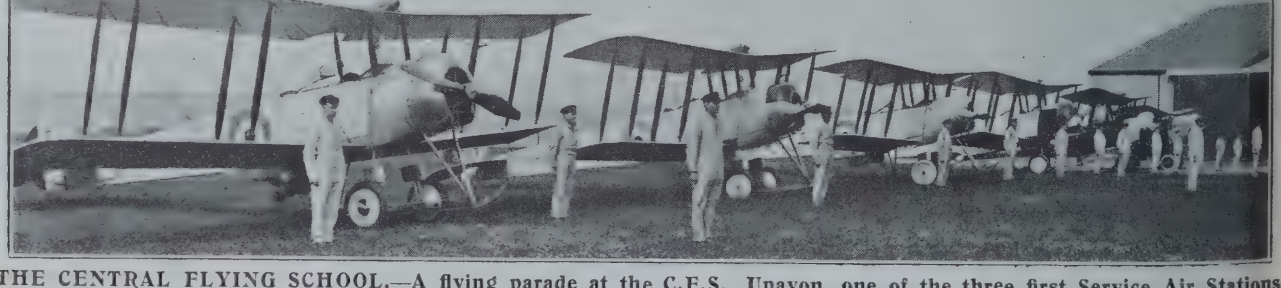
Junior Officers.

Here perhaps one may be forgiven for interpolating a few remarks on the subject of junior officers in the R.A.F generally. Taking them all round the junior officers in th Air Force are a splendid lot. But there is a little too muc of a tendency among them to regard flying as being the on and only thing that matters. They do not seem fully t appreciate the fact that, just as, in the words of Colonel Pau Henderson, "The success of an air line is on the ground," the success of an Air Force also depends on its groun organisation.

If the spirit of the men is not right then the pilots can not rely on having the best work done on their machines And if the officers themselves do not take enough interes in the men then they cannot expect the men to retain, whe they are drafted to units, the splendid spirit of discipli which they acquired at the Depot at Uxbridge or in the train ing schools at Cranwell and Halton.

One has heard only too often that men who left Uxbridg among the smartest batch on parade have come back there after perhaps a year or so at other stations, sloppy in appear ance and without any of the smartness which they acquire at the Depot, and apparently entirely ignorant of drill.

One admits freely that an R.A.F. officer has much mor difficulty in keeping in touch with his men than has a officer in the Army. In the Army the regiment is the hom of officers and men so long as they are serving the King The company officer is the father of his junior officers an men. And even the youngest platoon commander knows th Christian names of all his men and ought to know most o their family histories. He is directly responsible for th moral and physical health as well as the Service efficiency o every man under his command.



THE CENTRAL FLYING SCHOOL.—A flying parade at the C.F.S., Upavon, one of the three first Service Air Stations in the country. The machines are standard Avros of the 504K type.

100,000 miles on Napier engines by one Pilot!

Col. F. F. Minchin, D.S.O., the experienced pilot of Imperial Airways has covered over 100,000 miles (1000 hours) on Napier water cooled engines on commercial service.

The following is an extract from a recent letter to us:—

"Throughout the whole of this period I have never had a forced landing from engine failure, or experienced any engine trouble whatever.

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In the R.A.F. the ordinary Pilot Officer or Flying Officer is not responsible for anything that his men do. Unless he is detailed for special administrative duty or something of that sort his only job is to fly. Consequently he is only brought directly in contact with his own batman and with the riggers and fitters who are responsible for his own particular machine. And even then he is not directly in command of them.

Of course the young officer who has genuine intelligence makes a practice of keeping as closely in touch as possible with the men who work on his machine or who have to do with the armament and other equipment. He ought to have the sense to know that the better the men like him the better will be the work which they will do for him. But there are unfortunately a number of quite good pilots who are excellent fighting men and quite clever in the air whose interest in the Service begins and ends with their machines.

One fears that a good deal of this mental attitude among the junior officers is due to the system of Short Service Commissions. When a man knows that he is only going into the Service for five years and that his chance of getting a Permanent Commission, even if he wants it, is extremely remote he is naturally rather apt to play for his own hand and not for the team, the team in this case being represented by his flight or his squadron. And even the officer with a Permanent Commission, knowing that he may be shifted out of one squadron into another at five minutes' notice or sent from a home station overseas, naturally cannot work up the same individual personal interest in his men as does an officer in the Army.

The Short Service System.

Unfortunately the Short Service system seems to be inevitable. Though one has no official information which permits one to say so one believes that the prime object of the Short Service system is to build up a big reserve of pilots in readiness for the next war.

The case is somewhat analogous to that of the Prussian Army after its defeat by Napoleon Bonaparte at Jena. The Peace of Tilsit which followed the Prussian disasters enjoined a wholesale reduction of the Prussian Army. Queen Louise of Prussia, resolved to get her own back on Napoleon, not only encouraged volunteer organisations throughout the country but also instituted a Short Service system by which, although the permanent establishment of the Prussian Army was reduced to a contemptible size, men were trained to be soldiers and then passed out into the Reserve at such a rate that between 1806 and the ultimate downfall of Napoleon in 1812 Prussia had trained enough men to crush the French at the Battle of Leipzig and to drive him back into France.

The situation of the R.A.F. is something rather like that. The Government has limited the amount of money which can be spent on the R.A.F. The bulk of that money has to be spent on vast training establishments for aircraftsmen and on building and equipping what are called Home Defence aerodromes on such a scale as to permit the expansion of the Air Force to an enormous size in the event of war.

The Air Force at the moment consists of 3,000 officers and 30,000 men. But at the time of the Armistice in 1918 it consisted of 30,000 officers and 300,000 men. We may therefore assume that at the outbreak of another great war we shall need 30,000 officers and 300,000 men as soon as ever we can get them, and that in the course of a long war the Air Force will have to be expanded considerably more.

The Chief of the Air Staff said quite definitely in a speech some time ago that the Air Council was laying such foundations for the Air Force as would allow of an immense expansion. In other words the foundations are being laid on which to build an immense castle if necessary. And though we may only be able to afford and may ultimately only require to build a cottage on those foundations it will at any rate be a very fine thing in cottages.

That is why most of our available money is being spent on foundations and that is why we can only maintain an establishment of 3,000 officers. Therefore the only rational course for a far-sighted Air Council to follow is to pass as many pilots as possible through the Air Force as quickly as possible so that we may have a large reserve of pilots which can be called up in case of war.

Undoubtedly the Air Council could with the money at present available maintain a larger establishment of pilots with Permanent Commissions by reducing the expenditure on training establishments for mechanics and by abolishing Short Service officers. But the result would be that in ten or fifteen years time, if no war occurred before then, we should have a very large number of quite middle-aged pilots and a very small number of young pilots coming along each year to take the places of those who resigned or were killed year by year.

Admittedly the prospects for Short Service officers are not particularly brilliant. A minute percentage of them are granted Permanent Commissions, and the rest at the end of their term of service go out into a cold hard World without any definite means of earning a living unless they have had not only the commonsense but the initiative and determination to study for some profession in which they can earn a living when they leave the R.A.F.

Shortage of Officers.

The situation is somewhat complicated by the fact that apparently there is still some difficulty in getting enough young men of the best public school type to go to the R.A.F. Cadet College at Cranwell. One hears that the standard of education and even of type for passing into Cranwell has had to be lowered year by year in order to keep up the required number. And even of those who qualify socially and educationally an unfortunately large percentage do not become good pilots or good officers. Consequently the Air Staff cannot depend on the Cranwell cadets to keep up its supply.

The net result is that quite a number of the Short Service officers who have to leave at the end of their term of service in spite of being strongly recommended by their individual commanding officers for Permanent Commissions, are from every point of view superior to men of their own age who remain in the R.A.F. with Permanent Commissions because they have been through Cranwell.

There are those who advocate abolishing Cranwell and filling up all the Permanent Commissions with Short Service officers. Personally one believes that this would be a mistake, for the Cadet College should give in the R.A.F. precisely the same standing that Sandhurst and Woolwich do in the Army. But one does think that there might be some sort of compromise in that a greater number of Permanent Commissions might be given to Short Service officers and that an officer who has acquired a Permanent Commission by passing through Cranwell might well be required to resign if after a certain period with a squadron he did not prove to be a sufficiently competent pilot.

The Air Council would certainly find it cheaper to pay such a man a handsome gratuity and get rid of him than to let him go on flying and either kill himself and a useful passenger, or keep on breaking up valuable machines, or drift from being an incompetent pilot into a career as a probably equally incompetent administrative officer.

The idea of paying a Permanent Commission officer £5,000 to get out of the Air Force would probably sound absurd to an official of the Treasury. But that same officer, if allowed to remain in the Air Force and compelled to go on flying, might quite easily crash £20,000 or £30,000 worth of aeroplanes before putting himself permanently out of action. And when he did so, if he did not kill himself, he would then draw a pension for the rest of his life which would probably amount in the end to considerably more than £5,000.

In any case there is little doubt that the Short Service officers, who after all form the majority of the pilots and junior officers of the R.A.F., would take very much more interest in their men and would acquire very much more of the true spirit of the R.A.F. if they themselves had greater opportunities than are open to them at present for qualifying for Permanent Commissions and so making the R.A.F. their home for life.

Active Interest.

The spirit of the R.A.F. which is being so splendidly developed among the men in the training establishments can only be maintained in the squadrons and other stations if the officers take a continually active part in the lives of their men. Naturally every pilot cannot be an athlete but at least every officer can take an interest in the sports and general amusements of his unit, whatever it may be.

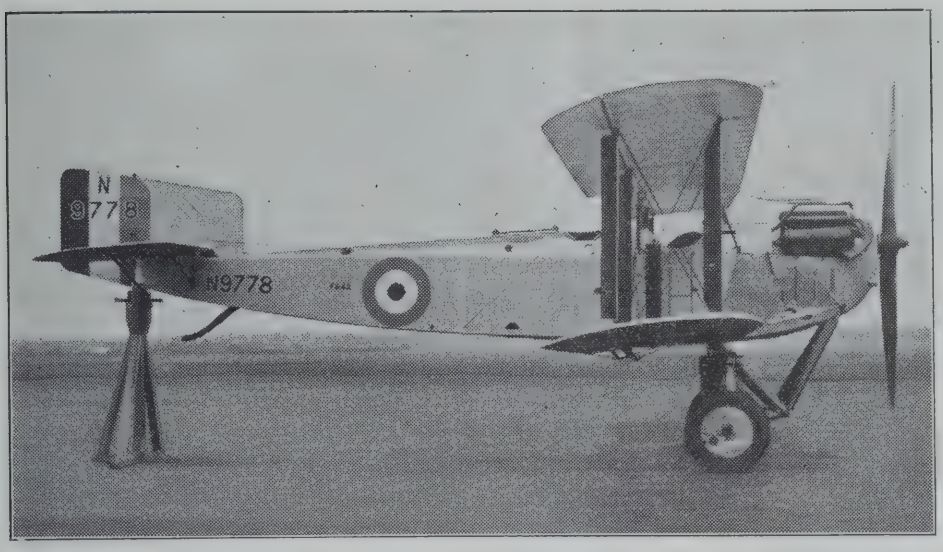
Every officer cannot afford to play polo, but when an officer is appointed to a station where polo is played he should certainly take an interest in the game and should do his best to support it and increase the interest in it. Similarly on stations where football or cricket are played every officer should take an interest in the games and should especially endeavour to induce his own womenfolk and his women friends to show a similarly intelligent interest, for there is nothing which improves the tone of sport more than to have a large feminine audience.

Personally one happens to be a Rugby football enthusiast, having played Rugger for rather more years, and rather more years ago, than one cares to remember. But one does recognise the fact that Association football is and must be the airmen's game. And therefore one would like to impress on all officers of the R.A.F. that they ought to interest themselves in the Soccer teams of their units. This plea comes the more appositely at this date when the football season is just opening.

Association Football.

One's particular reason for advocating the support of Soccer is that a very large proportion of the R.A.F. spends a very large proportion of its service overseas in India, in Iraq, in

R·A·F· TYPES — No 5.



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Palestine and in Egypt. In those countries the officers can play polo, they can hunt jackals though they cannot hunt foxes, they can shoot big and small game, they can go in for boating, and they can find all kinds of interesting ways of spending their time that are not available to the Other Ranks.

Rugby football is impossible on the hard grounds which are the only things available except during the rainy season when the mud is too heavy for even the most enthusiastic of Rugger mud-larks. Consequently the airmen play Soccer and enjoy it as practically their only form of sport. Therefore if the officers are to do their duty by their men and uphold the spirit of comradeship which should exist between officers and men they ought themselves to play Soccer or at any rate take a lively interest in the game.

Recently one was discussing R.A.F. Soccer with an enthusiast whose views agree very closely with those set forth hereinbefore. He himself had been a hard Rugger player but is now equally keen on Soccer because he realises that it is essentially the airmen's game. He lamented that Soccer football in the R.A.F. is descending in many ways to the level of professional football in that incidents occur which do not show either players or spectators in the best light.

Deportment.

Of course nobody minds players losing their temper with one another once in a while, but what this particular officer calls "moulding an opponent's face to the desire of the aggressor" is not desirable on the football field. Still less is it desirable that players should individually or in bulk abuse the referee when they happen to disagree from his decisions.

Similarly nobody minds the odd spectator shouting a humorously rude remark at a player who does something silly nor could one object to all the supporters on one side yelling at a piece of foul play. In fact barracking by the crowd in any form is rather to be recommended because it keeps the players up to their collars and even improves their nerve. But it is bad form for the supporters of a side to yell at the referee when his decision is adverse to their side. That sort of thing is typical of professional Soccer as played in certain districts. But it is not at all in keeping with the spirit of the R.A.F. and it should be severely jumped on by officers and men alike.

Such eccentricities of conduct on the field as unnecessary effusive hand-shaking, and even kissing of players by one another, has been rumoured. This peculiar behaviour is, one believes, not unusual among professional Soccer players. But it is distinctly out of keeping with the demeanour of the men of a Fighting Service, in which undue emotion is apt to interfere with efficiency.

The Need for Encouragement.

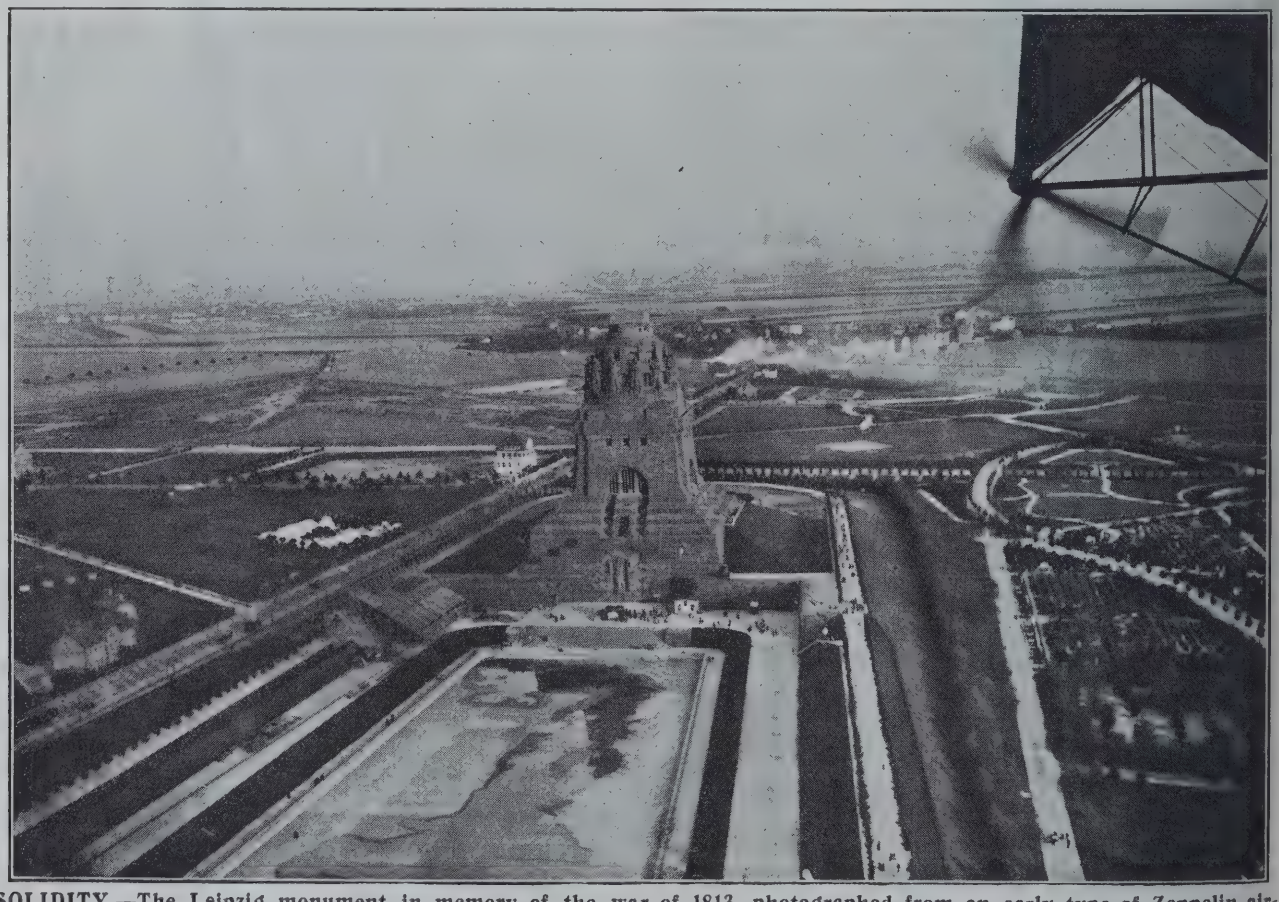
Obviously what is wanted to maintain the proper spirit is more encouragement of Soccer by the right people and one hopes that even the Rugger enthusiasts may be induced in future at any rate to take an interest in Soccer.

If a station happens to run a Rugger team as well as a Soccer team or two then of course the *élite* of the station will go to see the Rugger match, other things being equal. But one does suggest that when one of the Soccer teams happens to be playing anything like an important match all the officers and their women-folk who have nothing of urgent importance to do during those few hours would be spending the time very much to the advantage of the R.A.F., and so ultimately to their own advantage, if they would go and support their own station team by watching the match and applauding in the right sort of way.

Even admitting that Rugger is the more sporting game and is generally admitted to be socially the better-class game, Soccer ought to be supported by all the best people in every station where football is played. Their very presence on the touch-line influences the individual airman to exercise a certain amount of self-discipline, for at heart he is very particular about his conduct in front of his officers and his officers' feminine friends and relations, and he certainly appreciates any interest which is taken in his game and his team and his unit. And undoubtedly when officers play in the team along with their men, as is the custom in a good many stations, the whole tone of the game improves.

It is true that to-day the majority of the great public schools only play Rugger and that therefore the young R.A.F. officer of the rising generation will be handicapped by not having learned to play the game which his men play. But a good Rugger player takes very little time to learn to play Soccer and when a former Rugger player happens to be on a station which does not run a first-class Rugger team he will find it better for himself and for his relations with his men if he plays Soccer with them.

One hopes most sincerely that these few remarks on the men's games will get home in the officers' messes of the R.A.F. and will produce discussion which will result in a more active interest being taken in such games. Commanding officers might very well use their social influence, if not their Service rank, to induce the junior members of their community to help in the way suggested, so as to raise still higher that wonderful spirit which is already doing so much to justify the R.A.F.'s existence as our First Line of Defence.—C. G. G.



SOLIDITY.—The Leipzig monument in memory of the war of 1813, photographed from an early type of Zeppelin airship. The Deutscher Aero Lloyd have now built an aerodrome by the monument.

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These flights were accomplished without any change of engines en route

"The Britannia Trophy, presented by the Royal Aero Club for the best performance in the year, has been awarded for the year 1924 to Wing-Commander Goble and Flight-Lieutenant McIntyre for their flight round Australia in a Rolls-Royce-Fairey."

"Daily Telegraph," March 26th, 1925

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THE ROYAL ITALIAN AIR FORCE.

On Aug. 25, the Italian Air Commissariat was elevated into a Ministry with its own Budget estimates. Signor Mussolini was nominated Air Minister *ad interim.*

MATTERS OF FACT.

The following letter is of historical interest :—

Sir,—There are few people who will disagree with your general conclusions in the leading article "On the Loss of the *Shenandoah*" which appeared in THE AEROPLANE of Sept. 9, but there must be many who will regret that your known pride in the Royal Navy should have driven you to ignore the study of its recent history. That sorrow will concentrate principally on your references to the fate of H.M. destroyers *Cobra* and *Viper* and to the first public appearance of the Honourable Sir Charles Parsons' vessel *Turbinia.*

You say in the article that the *Viper* was built by the Parsons Turbine Company as a private speculation and that she disappeared when on a voyage from Newcastle to Portsmouth to be displayed to the Navy. In truth, both the *Cobra* and the *Viper,* which were sister ships, were built for the Navy by Armstrong Whitworth at Elswick.

The *Cobra* broke her back off the Yorkshire coast on her first voyage after leaving the contractor's yard and the *Viper,* after a short term of service with the Fleet, ran on to the Renouquet Rock in the Channel Islands and was destroyed. The *Turbinia*—which you style "*Turbina*"—was, as you say, present at the Naval Review at Spithead in 1897, which was a part of the ceremonial in connection with the Diamond Jubilee. Nevertheless she did not pass her trials until 1898.

The Parsons Turbine Company built the *Velox* in 1902 and sold her to the Navy in 1903. It is possible that you have confused part of the history of this vessel with part of the history of the *Viper.*

It should be remembered that immediately after the *Turbinia* had passed her trials in 1898 the Admiralty ordered the construction of the *Cobra* and *Viper,* both of which were laid down in 1898.

I am, Sir, etc.,

(Signed) W. E. DE B. WHITTAKER.

[The word *Turbina* was a mistake on the part of the printer. It appeared as *Turbinia* in the copy supplied by the writer.

The mistake about the *Viper* was due to the writer's relying, entirely against his own memory of the *Viper's* fate, on a definite and emphatic statement, supported by apparently irrefutable argument, produced by a high-class scientist of great engineering experience. Which shows the danger of believing scientific statements.—C. G. G.]

SECRETER AND SECRETER.

Sh! The Secret Schneider Cup Committee sat (sh!) on Wednesday of last week, at the ———. One who was there tells one that all the secret members were heavily cloaked and masked, and that so secret was the session that no words were uttered and the business was carried on by beam telepathy.

The Supermarine-Napier S(h)4 monoplane will be on view to certain press representatives on Thursday next. Cloaks and masks will be issued by Mr. Jones, of D. Napier and Son Ltd., at Waterloo Station, and the Air Ministry Meteorological Department are expected to provide a thick fog. Those present are asked to provide themselves at their own expense with darkness and composure. It is hoped that there will be at Waterloo scenes similar to those at the secret entraining of the British Expeditionary Force in August, 1914.

Another secret expedition to an East Coast watering-place to view the Secret-Gloster-Napier is being secretly planned for Friday, but this is so secret that so far no official news of the arrangements have reached this very secret office.—G. D.

LIFTING THE VEIL.

The following notice has been issued by the Royal Aero Club :—

A Meeting of the "Schneider" Committee was held at the Royal Aero Club on Wednesday, Sept. 9, 1925, when there were present :—Lieut.-Col. M. O. Darby in the Chair, Commander James Bird, Mr. H. Burroughes, Major J. S. Buchanan, O.B.E., Mr. H. T. Vane, and Mr. H. E. Perrin.

The arrangements for the British team were considered and it was decided that the machines and personnel should go by the *Minnewaska* sailing on Sept. 26, 1925, the Atlantic Transport Company Ltd. having very kindly undertaken to ship the machines free of charge.

The two machines to represent the British Empire selected by the Royal Aero Club are as follows :—

Supermarine-Napier S.4.—Constructed by the Supermarine Aviation Works Limited, Southampton, fitted with 450 h.p. Napier Lion, constructed by Messrs. D. Napier and Son Limited, Acton, London. Pilot : Capt. H. C. Biard.

Gloster-Napier III.—Constructed by the Gloucestershire Aircraft Company Limited, Cheltenham, fitted with 450 h.p. Napier Lion, constructed by Messrs. D. Napier and Son Ltd., Acton, London. Pilot : Capt. H. S. Broad.

Messrs. A. V. Roe and Co. Limited have kindly placed the services of Mr. Bert Hinkler at the disposal of the Royal Aero Club as reserve pilot and he will proceed to Baltimore with the team. The American Navy Department has cabled the Royal Aero Club placing machines at the disposal of the British pilots to enable them thoroughly to familiarise themselves with the course prior to the Race.

The Lords Commissioners of the Admiralty have advised the Royal Aero Club that arrangements have been made for H.M.S. *Valerian* to be present at Baltimore during the Races to lend assistance to the British competitors.

Sept. 14, 1925.

[Secretly and confidentially one would like to make a few remarks. (A) Now we know who are the component parts of the Secret Committee. (B) We take off our hats to t Atlantic Transport Co., Ltd., who thus contribute more the Aero Club's Racing Fund than have all its millionai Patrons and Members of Council together. One cannot member whether the *Minnewaska* was a "hush-boat" d ing the War 1914-18, but presumably she now goes onto t Air Ministry's Secret List. (C) Why were not three machin entered when in fact three machines are ready?—A seco Gloster III is going to the States as a reserve. And the Bam is going as a practice machine. (D) Captains Biard and Bro ceased to use their Service rank in private life some yea ago, as have most other war-officers who did actual servic So why revive the ranks? Is it to impress the American And if so why should Mr. Hinkler have no rank? (E) A. Roe and Co. and D. Napier and Son Ltd. are far from bei messers. But a limited company, having no soul to save a no body to kick, cannot be *Messieurs.* (F) We take off the san hat to the Lords Commissioners of the Admiralty. Presumab this is a reprisal for the *U.S.S. Pittsburg,* which visited Cowe The *Valerian* was a happy thought. Valerian is an odorife ous substance which attracts cats. Perchance it is intende to attract Lions (of the Napier breed), much as carrots a used to lure donkeys to more strenuous efforts. (Apologi to D. Napier and Son, Ltd., and the Secret Schneid Committee.)]

FLYING THROUGH FOG.

The press has been paying considerable attention durin the past few days to the question of flying through fog, an night-flying, as the result of an interview between Mr. Fran Courtney and the Air Correspondent of *The Morning Post.*

Mr. Courtney admits that there is nothing new in the idea he puts forward. In fact he told one that the idea is years old

But what does emerge is the fact that practically no ex perimental air line flying in fogs, or for that matter in an weather, has been done, except on ordinary service machine carrying, where possible, paying passengers. Now this i obviously all wrong.

Some time ago Mr. Courtney approached the Director o Civil Aviation to obtain on loan a three-engined machine t carry out tests under actual night and fog conditions. H was informed that the Treasury might consider loaning D.H.9, but would not loan a three-engined machine. Mr Courtney very properly refused the mere offer of a single engined machine for a flight on which a forced landing woul very likely be attended with serious consequences, especiall as the whole essence of his scheme is the use of a multiple engined machine which is not likely to be subject to a force landing.—G. D.

* * *

Mr. F. T. Courtney, whose all-round experience of flyin under all and every condition can scarcely be exceeded b that of any other single pilot, and who adds to that experienc an acquaintance with the difficulties which beset the de signers of aircraft, unfortunately unusual in pilots, has lon been an advocate of the instrumental, as opposed to th ground observation, method of aerial navigation.

It has generally been recognised by all who have considere the problems of commercial aviation seriously and intelli gently, that the ground observation method of navigatio necessarily involves risk of interruption of any service de pendent upon it under conditions of poor visibility, and ex perience has shown that in North-West Europe fogs and lo clouds are such frequent occurrences that either very grea risks have to be taken by flying in poor conditions or regu larity of service must suffer to a very serious extent.

Given a suitable equipment of navigating instruments, ther is no reason why an aircraft should depend upon groun visibility in order to steer a correct course from place t place. There are certain minor difficulties involved in flyin through fog or cloud, which, however, can be overcome i practice by the use of stable aircraft and of a reliable turn indicator. The ordinary magnetic compass, as used in a aeroplane, is not sufficient to allow a pilot to steer an exac course, in the absence of a view of the ground, in order t determine drift—but directional wireless equipment over comes this difficulty completely.

The only remaining difficulty is that of landing. Method have been devised which have enabled pilots to land on a aerodrome in thick fog which completely obscures that aero drome from the view of the pilot until he is within a foot o two of the surface. Very considerable improvements hav been effected in regard to arrangements for giving the pilo an exact knowledge of the position of the landing ground and it may now be said that it is only a question of spend ing the necessary cash, and of training pilots, to make land ing on a prepared ground perfectly safe in any weather.

Nevertheless, this applies to prepared grounds only, an it is at present impracticable to provide facilities for a force landing anywhere along a given route in thick fog. It is th risk of forced landing at any moment that has so far dictate

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that commercial flying shall be carried out practically entirely by ground observational methods. It is only when the pilot has ground continually in view that he can feel reasonable confidence in his capacity to pull off a landing forced by engine failure.

Abolish or—what is possible—very greatly reduce the risk of engine failure, and you will make it possible for the pilot to fly from aerodrome to aerodrome in reasonable safety without ever seeing the ground between.

Provide multiple-engined aircraft which are not forced down by a single engine failure, and it becomes safe to fly—at an adequate height—over a route with relatively far-spread landing grounds—always provided that the said grounds have the equipment necessary to permit of landing at them under any weather conditions.

Mr. Courtney has long held that the development of instrumental flying, combined with the necessary ground organisation, was all that was necessary to secure safety and regularity in commercial air services. With the development of the three-engined aeroplane, he apparently feels that the time has come when the risk of intermediate forced landings can be reduced to such an extent as to render the process of flying by combined instrumental and ground control practicable, and he has communicated his opinion to the lay press—who have given his opinions very considerable prominence.

Naturally, these papers do not descend into details, so that it is not quite certain what particular instrumental and ground controls Mr. Courtney has in mind. On general principles, however, one agrees entirely with his views. If passenger carrying by air is to become a commercial undertaking, aircraft must become at least as independent of normal meteorological disturbances as are the standard forms of surface transport, and—before this can become the case—the aeroplane must be able to fly about its appointed business without entire dependence on what the pilot can see at any instant and on what risks he is prepared to take in the face of an unexpected contingency.

Mr. Courtney does not suggest that the London-Paris service could be turned over to instrumental and ground control to-morrow. He asks for two three-engined machines, and a year, in which to carry on practical experiments and the training of pilots, at the end of which time he feels certain that he could operate a day and night service in any weather in which boats and trains could run. There can be little doubt that he is entirely justified by the facts, as they are known to-day.

The only question that one would raise on the subject, is—Why is it left to Mr. Courtney to agitate for the development of such a system? What was the motive which induced H.M. Government to provide £1,000,000 and a ten-years' monopoly to Imperial Airways, if it were not to give them time and the opportunity to develop the methods of operating regular air lines on a sound practical and commercial basis?—W. H. S.

PARIS-KARACHI FLIGHT ACCIDENT.

On Sept. 13 MM. Thierry and Coste left Villacoublay on a Breguet XIX biplane (480 h.p. Renault engine) in an attempt to fly non-stop to Bunder Abbas and thence to Karachi.

The machine crashed near Freiburg, in the Black Forest, and M. Thierry was killed. M. Coste, who was seriously injured, was taken to Freiburg Hospital.

The machine was carrying a load of 533 gallons of petr 42 gallons of oil, and 17 gallons of benzole, weighing roug two tons, together with 1¼ cwt. of spare parts, and 44 lbs. provisions. It is quite feasible that the machine, thus load failed to negotiate the Black Forest mountains, and flew i trees or the side of a hill.

M. Thierry has been chief pilot to the Breguet Co. for so three or four years, and he has done some very brilliant wo for them. Ever since the Breguet XIX came out he h flown this machine all over Europe, and his demonstratio have been partly responsible for the big demand for t machine among the smaller European countries.

M. Coste will be better known in this country as one of very able Air Union pilots. Prior to entering civil aviati he served brilliantly in the French Air Service.

His handling of the Goliath will be remembered by ma who attended Mr. Fokker's non-stalling demonstrations Croydon, and again during the 1925 King's Cup Race, wh he took a Goliath up and did all things that should not done with such a machine. One wishes him a speedy covery.

AMERICAN SEAPLANE FOUND.

On Sept. 11, the U.S. Navy flying boat, P.N.9 No. 1, w picked up at sea by an American submarine after being adr and missing for 10 days.

On Aug. 31 two P.N.9 flying boats left San Francisco make a non-stop flight to Hawaii, a distance of 2,100 mil P.N.9 No. 3 force-landed about 300 miles from San Francis and was towed back by a U.S. destroyer.

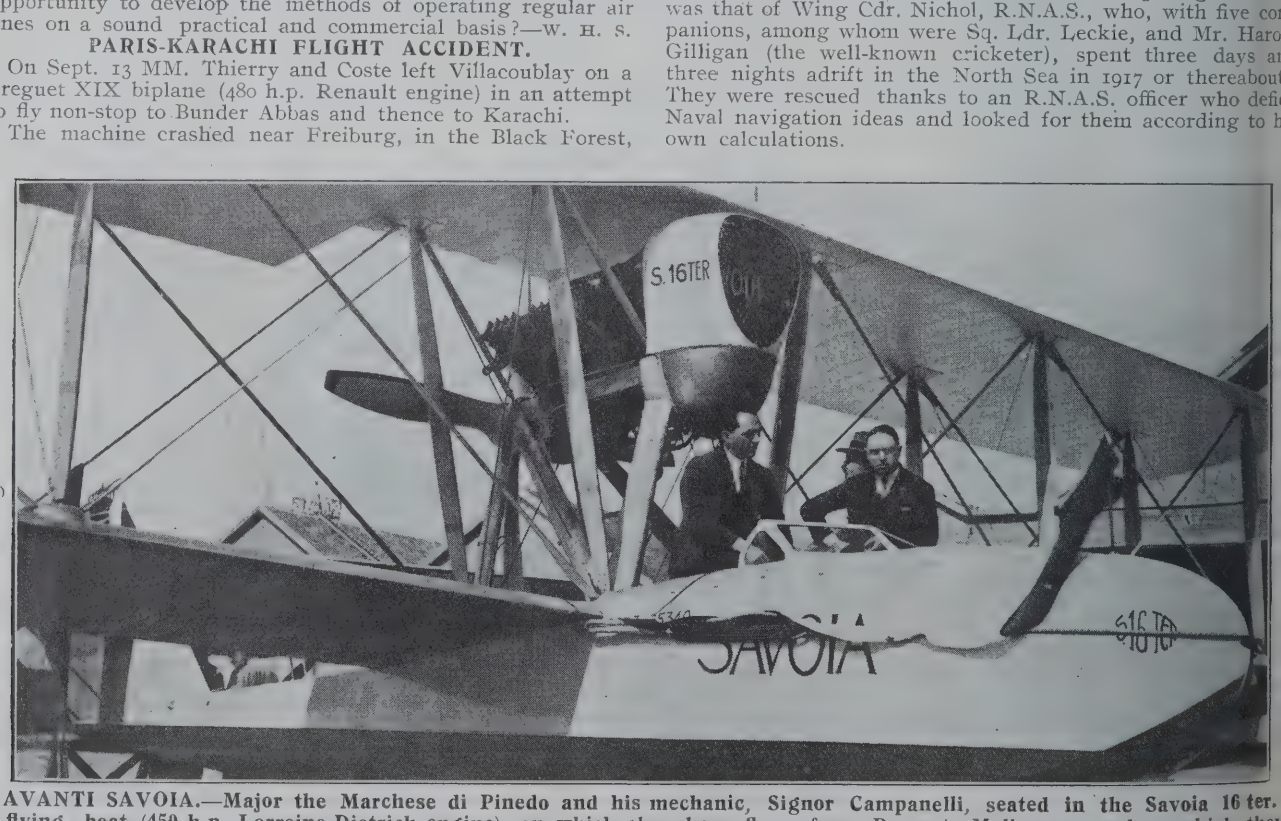
P.N.9 No. 1 was forced down owing to lack of fuel Sept. 1, 150 miles from Maui Island, and was adrift for 21 hours.

All organised search for the seaplane failed, and offic hope for the safety of the crew had been given up. T submarine R.4, which picked the seaplane up, was on way to meet the U.S. Pacific Fleet which was returning fr its visit to Australia.

The crew of the P.N.9 No. 1, Commander John Roge U.S.N. (Senior flying officer of the expedition), ran out food after the fifth day adrift, but were kept alive by wat distilled on board in a small plant installed by Command Rogers. In spite of their hardships all were in good heal when picked up, and they refused to leave the seaplane un it had been towed safely to Kauai Island and beached there

When picked up the P.N.9 No. 1 was 15 miles N.W. Nawiliwili, Island of Kauai, approximately 450 miles fr the spot at which it was forced down.

The only case which one can recall as comparing with th was that of Wing Cdr. Nichol, R.N.A.S., who, with five co panions, among whom were Sq. Ldr. Leckie, and Mr. Haro Gilligan (the well-known cricketer), spent three days a three nights adrift in the North Sea in 1917 or thereabou They were rescued thanks to an R.N.A.S. officer who defi Naval navigation ideas and looked for them according to h own calculations.



AVANTI SAVOIA.—Major the Marchese di Pinedo and his mechanic, Signor Campanelli, seated in the Savoia 16 ter. flying boat (450 h.p. Lorraine-Dietrich engine), on which they have flown from Rome to Melbourne, and on which they are now engaged in flying from Melbourne to Tokyo and subsequently back to Rome. The 14,250 odd miles from Rom to Melbourne were covered in 147 flying hours.



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The above photograph shows the "HIGHCLERE" taking off from Stag Lane Aerodrome.

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The de Havilland "MOTH" which has been described by FLIGHT as "the most practical light aeroplane yet produced" has been selected as their standard equipment by all the Light Aeroplane Clubs in Great Britain.
The photograph below shows the first batch of "MOTHS" ready for delivery.



THE ROYAL AIR FORCE.

The London Gazette.

Sept. 11.

GENERAL DUTIES BRANCH.—Flt. Lt. A. P. Davidson is placed on half-pay, Scale B (Aug. 27).

Air Vice-Marshal Sir Vyell Vyvyan, K.C.B., D.S.O., is placed on the retired list at his own request (Sept. 1).

Flg. Off. C. E. B. Winch is transferred to the Reserve, Class A (Sept. 7). Flg. Off. T. H. R. Riggs, D.C.M., M.M. (Lt., Lincs. Regt.), relinquishes his temp. comn. on return to Army duty (Aug. 10). The S.S. comn. of Plt. Off. on probation G. A. Younger is terminated on cessation of duty (Sept. 1).

Flg. Off. D. H. MacDonald-Lawson (Lt., Lancs. Fus., R.A.R.O.), is dismissed the Service by sentence of General Court Martial (Aug. 13).

STORES BRANCH.—Flg. Off. E. N. D. Worsley is confirmed in rank (July 19).

ACCOUNTANT BRANCH.—Flg. Off. J. C. Christian, M.C., is transferred to the Reserve, Class C (Sept. 5).

MEDICAL BRANCH.—Flg. Off. T. V. O'Brien, M.B., is granted a perm. comn. in the rank stated (Sept. 9).

The following are granted S.S. comns. as Flg. Offs. for three years on the Active List, with effect from, and with seniority of, the dates indicated:—J. McM. Wilder (Aug. 24), H. G. Maguire (Aug. 25).

Flg. Off. H. W. D. Mackenzie, M.B., is transferred to the Reserve, Class D.1 (Sept. 9).

RESERVE OF AIR FORCE OFFICERS.—F. W. Marshall is granted a comn. in Class A, General Duties Branch, as a Flg. Off. on probation (Sept. 8). Flt. Lt. P. André de Fontenay, D.F.C., is employed with the Regular Air Force for a period of one year (Sept. 7). Plt. Off. R. D. Wayman is confirmed in rank (Aug. 23). Flg. Off. E. Marsden is transferred from Class B to Class C (Aug. 8).

ERRATUM.—The date of appointment of the Flight Cadets granted perm. comns. in *Gazette* of Sept. 1, is July 30, and not as previously stated.

Appointments.

Week ending Sept. 15.

GENERAL DUTIES BRANCH.—Wing Commander G. R. M. Reid, D.S.O., M.C., to Station H.Q., Spittlegate, to command, 15/9.

Squadron Leader E. R. Manning, D.S.O., M.C., to R.A.F. Depot, Uxbridge, 2/9, on transfer to Home Estab.

Flight Lieutenants W. E. C. B. C. Forsyth, to M.T. Repair Depot, Shrewsbury, 14/9. R. M. Trevethan, M.C., to R.A.F. Depot, Uxbridge, 24/8.

Flying Officers Thomas Rose, D.F.C., to No. 43 Sqdn., Henlow, 7/8. L. A. W. Deane, to remain at No. 1 School of T.T. (Boys), Halton. W. N. Lancaster, to remain at School of T.T. (Men), Manston. O. K. Stirling-Webb, to I.A.A.D., Henlow, 7/9. L. H. Ridley, to R.A.F. Depot, Uxbridge, 15/8. J. F. Dewar, to No. 7 Group H.Q., Andover, 30/8. F. E. Bond, to No. 461 Flight, Gosport, 15/9. G. H. Smith, to Night Flying Flight, Biggin Hill, 18/9. G. W. Higgs, to No. 7 Sqdn., Bircham Newton, 18/9.

Pilot Officers C. J. Pavia, to No. 5 F.T.S., Sealand, 12/9. A. H. W. J. Cocks, to R.A.F Depot, Uxbridge, 11/9.

MEDICAL BRANCH.—Squadron Leader T. Montgomery, M.D., D.P.H., B.A., to R.A.F. Depot, Uxbridge, 1/10.

Flight Lieutenants (Hon. Sq. Ldr.) E. Brown, to No. 100 Sqdn., Spittlegate, 4/9. J. Prendergast, to C.F.S., Upavon, 5/9. J. J. Boyd (Dental), to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 7/9.

Flying Officers T. V. O'Brien, M.B., to No. 208 Sqdn., Egypt, 27/8. A. Harvey, M.B., to No. 4 F.T.S., Egypt, 27/8.

STORES BRANCH.—Pilot Officer Alfred Amy, to M.A.E.E., Felixstowe, 9/9.

ACCOUNTANT BRANCH.—Flying Officers F. J. S. Short, to No. 1 S.D., Kidbrooke, 15/9. H. E. Cardwell, A.F.C., to No. 1 F.T.S., Netheravon, 29/9.

Pilot Officers T. P. E. Campbell, J. O. Morrison, F. Rigby, and R. Wishlade, to No. 1 S.D., Kidbrooke, 3/9.

The Retirement of Sir Vyell Vyvyan.

There will be general regret at the announcement in *The London Gazette*, that Air Vice-Marshal Sir Vyell Vyvyan has retired from the Royal Air Force.

Air Vice-Marshal Sir Vyell Vyvyan was born in 1875, a son of the late Colonel R. O. Vyvyan and a grandson of the late General Sir Aineas Perkins, K.C.B., R.E., on his mother's side.

Originally a Naval Officer, although descended from families of soldiers, Sir Vyell served in the punitive naval expedition against the King of Benin in 1897, which was, naturally, a land-going war. He was on the Staff of the R.N. War College, 1911-13, and a War Staff Officer in 1912. Also he was Assistant to the Chief of the War Staff in 1913-14.

He served in the Dardanelles in 1914-15 and was appointed to the Air Department of the Admiralty in January, 1916. He became Senior R.A.F. Officer under the Commander-in-Chief, Mediterranean Naval Forces in April, 1918.

When the R.A.F. came into being in April, 1918, he was gazetted Colonel, temp. Brig.-Gen., R.A.F., and was promoted to the actin rank of Major-Gen. in October, 1918.

He was gazetted Air Vice-Marshal in October, 1919.

In September, 1919, he became Air Officer Commanding the Coast Area, R.A.F., which appointment he held until September, 1924.

He was made a C.B. in 1918 and a K.C.B. in 1923. His decoration include the D.S.O., Legion of Honour, St. Anne, Rising Sun, America Distinguished Service and Grand Cordon of the Redeemer.

Of all the Naval Officers who have served in the R.A.F. none ha done more for the Air Service than Sir Vyell, and certainly nobody ha worked harder to promote good feeling between the Navy and th Air Force. His Army descent and his Navy up-bringing gave him a understanding of the outlook of both Services which is denied to a but a very few Naval Officers. Also he has the gift of inspiring pe sonal affection in all who serve with him as well as respect for hi ability. Sir Vyell is still a young man as Senior Staff Officers go, an one hopes that he may still do good work for the Air Force in th next War.—C. G. G.

TWO ITALIAN COMPETITIONS.

The Aero Club d'Italia are organising two competitions, the Coppa del Mare and the Coppa d'Italia, to take place on Oct. 24-28 and Nov. 11-15 respectively.

The Coppa d'Italia is open to single-engined tractor land seaplanes, fitted with one engine of 40-90 h.p., to possess a minimum speed of not more than 70 km.p.h., and a maximum speed of over 100 km.p.h. The machines are to be two-seaters fitted with dual control, and must carry a useful load of 175 kgs. (including pilot and passenger), together with sufficient fuel and oil to cover the prescribed course.

The triangular circuit of 50 kms., over the Bay of Naples, must be covered five times. In addition to the Coppa del Mare, money prizes to the value of 150,000 lira, and 50,000 lira to the machine gaining first and second places.

The Coppa d'Italia is open to single-engined tractor land aeroplanes possessing the same characteristics as mentioned above for the Coppa del Mare. The circuit is Montecello—Centocelle—Ciampiano, in the vicinity of Rome, a distance of 50 kms., which must be covered six times.

The first and second prizes amount to 150,000 lira, and 50,000 lira, the Coppa d'Italia being awarded to the first prize winner to hold for one year.

Full particulars of these two competitions, together with entry forms, etc., may be obtained from the Aero Club d'Italia, Via del Tritone, N. 183, Rome.

A NON-STALLING TRIBE.

"The Life and Adventures of Peter Wilkins, a Cornishman." By Robert Paltock. 416 pp. 16 ills. Dulau and Co., Ltd., 34, Margaret Street, W.1. 8s. 6d. net.

Peter Wilkins was published anonymously in 1751, and is said to have found considerable favour with Leigh Hunt, Charles Lamb, Southey, Coleridge and Sir Walter Scott. It was dedicated to Elizabeth, Countess of Northumberland. The story tells how Peter Wilkins, a Cornishman, leaves his home and goes to sea as a captain's steward. The ship sails from Bristol and is soon engaged with a French privateer. The hero is taken prisoner and then turned adrift in a small boat. A gruesome description of the devouring of the corpses of their friends by the survivors follows, and they land on the African shore.

Mr. Wilkins goes from one colossal adventure to the next and after being shipwrecked finds himself in a great lake in a beautiful country. Everything necessary t the happiness and comfort of Mr. Wilkins is showered dow on him, including a beautiful, good wife, equipped with no diving and non-stalling wings. Mrs. Wilkins is a princes in her own land, but she does not seek out her own peopl for many years. Eventually she does so, accompanied b such of the innumerable little Wilkinses as are able to fl She finds her father at war with other winged tribes and ce tain retainers are sent back to fetch Mr. Wilkins who b comes a sort of generalissimo, and by a series of rather dirt tricks wins the war for his father-in-law.

Mr. Wilkins, like other heroes of romance, is a prig. And like most prigs, fortune smiles on him and in spite of th handicap of being only a sailor in a country of fully-equippe airmen, he becomes a very great man indeed.

The story is quite amusing and the reprint is very wel bound and got up by its enterprising publisher.—C. M. MCA.

THE LINE-SHOOTER.

[ETYMOLOGICAL NOTE—*"Shooting a Line" connotes sending forth line of words calculated to enhance the notoriety, reputation, positio or whatnot of the shooter.*—ED.]

Oh! Big-game hunters all may sing
The joys that shots at big game bring;—
The hippo in his muddy lair,
The rhino charging nose in air—
But none of these is quite so fine
As shooting an enormous line.

For lions may be shot by all
Who can afford the price of ball,
Of powder and a musket true,
A licence, in some cases, too;
But wit and skill, not gold, combine
For shooting an enormous line.

Trips with Blank to distant seas,
Or climbing up the Pyrenees,
Or flights across (the name suppressed),
Adventures as a Sultan's guest,
Are fields for those who wish to shine
At shooting an enormous line.

First hand knowledge is, you see,
Quite supererogatory
Since local colour for the scenes
Is culled with ease from magazines
And cinemas are fruitful mines
For those who shoot enormous lines.

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A FORD AEROPLANE TROPHY.

At the instigation of the Society of Automotive Engineers, the Detroit Aviation Society have organised an Aeroplane Reliability Tour to take place from Sept. 28 to Oct. 3.

Mr. Edsel B. Ford, son of Henry Ford, has presented a trophy for annual competition. Each annual contest will be in the nature of a cross-country tour for machines entered by bona-fide aircraft manufacturers.

For 1925, the contest will be limited to civilian constructors and civilian pilots and will be open to aircraft seating pilot and at least one passenger. Competing machines must possess a speed greater than 80 m.p.h., as loaded for the tour. All aircraft must carry in addition to the pilot a " pay " load equal to .5 lb. per cub. in. of engine displacement, which can be in the form of passengers or ballast.

Each pilot actually starting and completing at least one leg of the circuit will receive an allowance of $100 to help in defraying his subsequent expenses on the tour, and each pilot who completes the whole circuit within the specified requirements will receive, in addition, a prize of $250. The Ford Trophy will not be awarded this year.

The 1925 circuit will be as follows :—Sept. 28 : Detroit—Fort Wayne, Fort Wayne—Chicago; Sept. 29 : Chicago—Omaha, via Iowa City; Sept. 30 : Omaha—St. Joseph, St. Joseph—Kansas City; Oct. 1 : Kansas City—St. Louis; Oct. 2 : St. Louis—Indianapolis, Indianapolis—Columbus; Oct. 3 : Columbus—Cleveland, Cleveland—Detroit.

So far the following entries have been received :—Three Travel-Air biplanes; two Laird Swallows; one Fokker, to be flown by Mr. A. H. G. Fokker; one Junkers; one Curtiss; one Wright; one Waco; one Stout all-metal monoplane, and one Alexander Eagle Rock, whatever that may be.

The original idea of this cross-country tour was to give the " gipsy flier " a chance to compete in a competition without fear of losing money. At all the big American Meetings there has always been events solely for commercial and " gipsy " pilots, but except for those fortunate enough to win a prize, all other competitors were out of pocket to the extent of the cost of petrol, oil, accommodation, etc.

Similarly there has always been an " On-to-Wherever-the-Meeting-was-held " Race, which encouraged " gipsy " pilots to fly from all parts of the country to the town holding the Meeting. But again, except for those who flew the longest distance to the meeting and thus won a small money prize, all other pilots were sadly out of pocket.

To make matters worse these gipsy flyers were confined to what was known as " Hell's Half-Acre," far away from the public enclosures, and there they had to sit without shed accommodation while the public marvelled at and applauded the accomplishments of the Army and Navy pilots.

The cross-country tour, as organised by the Detroit Aviation Society, should do a lot towards encouraging the smaller, but equally well-deserving, aircraft operators in America.

U.S. AIR DEFENCES.

According to *The Morning Post,* in response to the joint request of the Secretary of the Navy (Mr. Wilbur), and the Acting Secretary for War (Mr. Davis), President Coolidge has appointed a board consisting of nine representative zens, to study, and advise upon the best means for the velopment and application of aircraft for national defenc

The President's decision came as a great surprise Washington. It was known that the President wanted vestigation, but it was not believed that he was ready to

The Presidential letter asking the members of the Bo to meet at the White House did not state whether the inve gation is expected to include the charges against Col Mitchell.

It is inferred that the Board is going thoroughly into subject, and will necessarily take cognisance of Col Mitchell's allegations, and also consider the question o unified air service for which Colonel Mitchell has consiste pleaded.

Major-General James G. Harbord, retired, now Presiden the Radio Corporation, has been chosen as head of the vestigation board. Other members are, Rear-Admiral Fr F. Fletcher, retired, Mr. Dwight Morrow, of the J. P. Mor Co., Senator Hiram Bingham, Representative Carlo Vins Mr. James S. Parker, and Judge Arthur C. Denison.

U.S. AIR MANŒUVRES.

The following account of air operations in connection v the Phillipine Division Manœuvres, is taken from the *Army Air Service News Letter* :—

During the recent maneuvers of the Philippine Division, betw Fort William McKinley and Manila, the Air Service played an imp ant part. This is one of the first instances where a whole group sisting of observation, pursuit, and bombardment participated maneuvers carried out on so large a scale.

An Air Service Radio truck was stationed near Brigade H.Q. which point, Lieut. E. G. Harper performed the duties of Air Ser Liaison Officer and relayed requests for service to the base at Ca Nichols. The photographic work was very interesting and q instructive. The entire sector of operations was photographed. M photographs were made of positions held by friendly troops and rus back to H.Q. In short, the airplane proved itself very efficient keeping the General in command intimately acquainted with the do of his own units. Radio, Very pistols, smoke signals, message b and panels of all kinds were used as means of communication betw planes and ground.

Bombing attacks were simulated upon bridges across the P River and other strategic points.

The most spectacular Air Service activity was that of an attack m by the Third Pursuit Squadron upon an anti-aircraft battery. At time of the bombing attacks upon the bridges the pursuit endeavo to occupy the attention of the recently discovered anti-aircraft batter A " V " formation of MB 3A airplanes circled high over head, t dropped in column formation. Sneaking down behind the woods n the anti-aircraft guns, the MB 3As gathered speed and with a final l dive headed straight for the guns' positions coming so close as actually throw a chill into the gunners. Again and again the batt was attacked until the bombers had done their work.

The officers at Fort McKinley seemed very pleased with the coop tion of the Air Service.

SPEEDING UP.

M. Sadi Lecointe, the well-known speed pilot, and hol of many World's Records, has been promoted Capitaine Réserve in the French Aeronautique Militaire, and has p ceeded to Morocco as a volunteer to take part in the Fran Riff campaign.

ROYAL INTEREST.—H.R.H. the Duke of York inspecting the 27/60 h.p. Cirrus engine which is among the Aircraft Disposal Co.'s exhibits at Wembley. The Cirrus engine is the standard engine fitted to all De Havilland Moths as supplied to the Light Aeroplane Clubs. It was designed by Major Halford of " B.H.P." fame and was produced by the Aircraft Disposal Company Ltd. early this year. It is an extremely reliable engine and is easy and cheap to maintain.



KING'S CUP RACE

Round Great Britain

(1,610 miles).

FIRST. ARMSTRONG WHITWORTH (SISKIN V).
Pilot: Capt. F. L. Barnard.

SECOND. ARMSTRONG WHITWORTH (SISKIN IV).
Pilot: Sqn. Ldr. H. W. G. Jones, M.C.

THIRD. DE HAVILLAND (D.H. 37).
Pilot: Major H. Hemming, A.F.C.

CROYDON STAKES.

(523 miles).

FIRST. DE HAVILLAND (D.H. 51).
Pilot: Col. The Master of Sempill.

SECOND. DE HAVILLAND (D.H. 60).
Pilot: Alan J. Cobham.

THIRD. A. V. ROE (AVRO 504N).
Pilot: Bert Hinkler.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS



The three-engined Junkers G.23 as a float seaplane.

A NEW AERO-ENGINE MANUFACTURER.

A new company, known as the Pratt and Whitney Aircraft Co. at Hartford, Conn., has been registered to manufacture aero engines. The new company will occupy part of the manufacturing facilities of the Pratt and Whitney Co. which was formerly the Pope-Hartford Motor Plant, and the Aircraft Company will be owned jointly by the Pratt and Whitney Co., certain experienced personnel of the Aircraft Industry and other important manufacturing interests.

The officers of the new Aircraft Co. are Mr. Fred B. Rentschler, President, and Mr. George J. Mead, Vice-President, and Mr. E. L. Morgan, Secretary and Treasurer. The engineering work of the company will be directed by Mr. Mead.

Mr. Mead, after graduating from the Massachusetts Institute of Technology in 1916, became an engineer for the Sterling Engine Co. and later joined the Simplex Automobile Co. at New Brunswick, N.J. When the latter company became the Wright-Martin Aircraft Corporation, Mr. Mead was engaged from 1916-1919 in the development and manufacture of the French Hispano-Suiza engines for the U.S. Government. In 1919 he became engineer-in-charge of the Power Plant Laboratory of the Engineering Division of the Army Air Service at McCook Field, Dayton, Ohio. In 1919 he returned to the Wright Aeronautical Corporation, the name having been changed, and has been chief engineer of that firm up to the time he resigned to take up his new post. In that capacity he has been responsible for the development of a number of successful aero engines, including the Wright E.4 and the big T.3 or Typhoon of 650-700 h.p.

The President of the company, Mr. Rentschler, has been actively concerned with the American aeronautical industry since 1918. During the war he was a Captain in the Air Service as officer-in-charge of the production of aero engines and aircraft for the Bureau of Aircraft Production. Later he became District Manager of Aircraft Production for the New York district. After the war he joined the Wright Aeronautical Corporation and became President of that company, resigning in the latter part of 1924.

The Pratt and Whitney parent firm has long been world-famous as a manufacturer of precision tools of all kinds, and its reputation should secure that aero engines produced under its control will be above criticism in regard to workmanship.

AMERICAN AIR FINANCE.

The following paragraph is taken from the America column of *The Daily Telegraph* of Aug. 10 :—

Visions of a great commercial aerial fleet in the United States are again conjured up by the information that rival financial groups on Wall Street are seeking control of airway transportation because of the conviction that a few years will see much passenger and goods traffic travelling via air routes. So far there are few facts available. The chief is that Mr. Herbert Satterlee, the brother-in-law of Mr. J. P. Morgan, and Mr. John Hays Hammond, jun., the son of the noted mining engineer, have offered to lease the dirigible *Los Angeles* from the Government, and operate it, and others to be constructed, between New York, Chicago, and St. Louis. Mr. Henry Ford, the extent of whose fortune cannot be calculated, has entered the aviation field seriously with the announced intention of turning out one flying machine daily.

Naval officials, it is known, are studying the possibilities of a short aerial route between the United States and Japan via the North Pole.

After a conference with President Coolidge over the proposed leasing of the *Los Angeles*, Mr. Hoover, the Secretary of Commerce, said that, if this country was to develop commercial aviation, the Government must aid private concerns in the way suggested by Mr. Satterlee. If the experiment was successful, he added, engineers could build many other dirigibles, all manned by navy men, who, with their airships, would be at the service of the Government in time of war.

The advantage of such a plan to the Government was, he said, obvious. The talk of a great aerial fleet available for military purposes, if necessary, sounds a popular note here, and with co-operation between the Government and powerful financial interests, the realisation of "air supremacy" is not a fantastic dream.

ARGENTINE AERO-PHOTOGRAPHY.

Those who are interested (and who is not?) in the various photographs taken of Buenos Aires from the air, should note that they are the product of Aero-Fotos, of Lavalle 341, Buenos Aires, the partners in which are Major S. G. Kingsley and Capt. S. H. Holland. Unfortunately the name of Capt. Holland was omitted from the description of the photograph of the Palermo Park, B.A., which appeared in THE AEROPLANE recently.

Aero-Fotos are doing big business in The Argentine, where there are numbers of big shipping firms and ranch-owners who wish for air views of their establishments. From such air-survey work regular commercial flying may well develop, and as Major Kingsley has been so long connected with Argentine aviation he is well placed to deal with the situation. He is now in England discussing interesting business propositions with aircraft firms.

EGYPTIAN AVIATION.

The Times correspondent in Cairo, in a communication dated July 30, states :—

The Ministries of War and Communications have submitted joint proposals for the development of Egyptian civil and military aviation, and the Government has set aside £E.150,000 for preliminary expenditure.

The memorandum recommends the immediate formation of an aviation school at Cairo at a cost of £E.135,000 and the despatch to Europe of selected candidates for training. In regard to military aviation, it is proposed to establish a flying corps to be based on Assiut, with detachments at Alexandria and Suez, at a cost in the first year of £E.68,000, rising to £E.322,000 in the third year. From the fifth year onward the annual charge is expected to be £E.286,000.

The Morning Post states that the total sum to be spent is £1,250,000 at the rate of £250,000 annually.

The Times correspondent in Cairo, cabling on July 26, says :—

The Egyptian Council of Ministers has approved the despatch of two parties, one civil and the other military, to Europe for training in aviation, and an immediate start on the construction of aerodromes at Cairo and Alexandria.

EUROPE-TROTTING.

On Sept. 8, three aeroplanes of the Italian Royal Air Force under the command of Commandante Bologna, left Turin on a "showing the flag" tour of Eastern and Central Europe. The route to be followed will be via Udine, Vienna, Budapest, Lemberg, Jassy, Bucharest, Constantinople, Sofia, Belgrade, Budapest, Udine, Rome and Turin.

On Sept. 9, four aeroplanes of the Czecho-Slovak Military Air Force left Prague for Copenhagen, to return the visit of some Danish military machines to Prague made last year. The consent of the German Government for the machines to fly over Germany had been obtained, and all four machines landed at Berlin for petrol.

GERMAN CIVIL AVIATION.

The following statistics have been issued in regard to air transport work in Germany from January to June, 1925 :—

Deutscher Aero Lloyd.—Mileage flown, 559,242; passengers carried, 15,200; frieght and baggage carried, 103 tons.

Junkers-Luftverkehr.—Mileage flown, 937,233; passengers carried, 28,389; freight and baggage carried, 129 tons, and 36 tons of mails.

The total figures for both companies are equivalent to an increase of 200 per cent. on the figures for the whole of 1923.

On July 21 two new air routes, connecting Berlin with Amsterdam and Bremen, were opened for passenger traffic by the Junkers-Luftverkehr.

[That is to say that in six months the German air lines do half as much again mileage as do our Great British Air Line in one year and the Germans carry about seven times as many passengers.]

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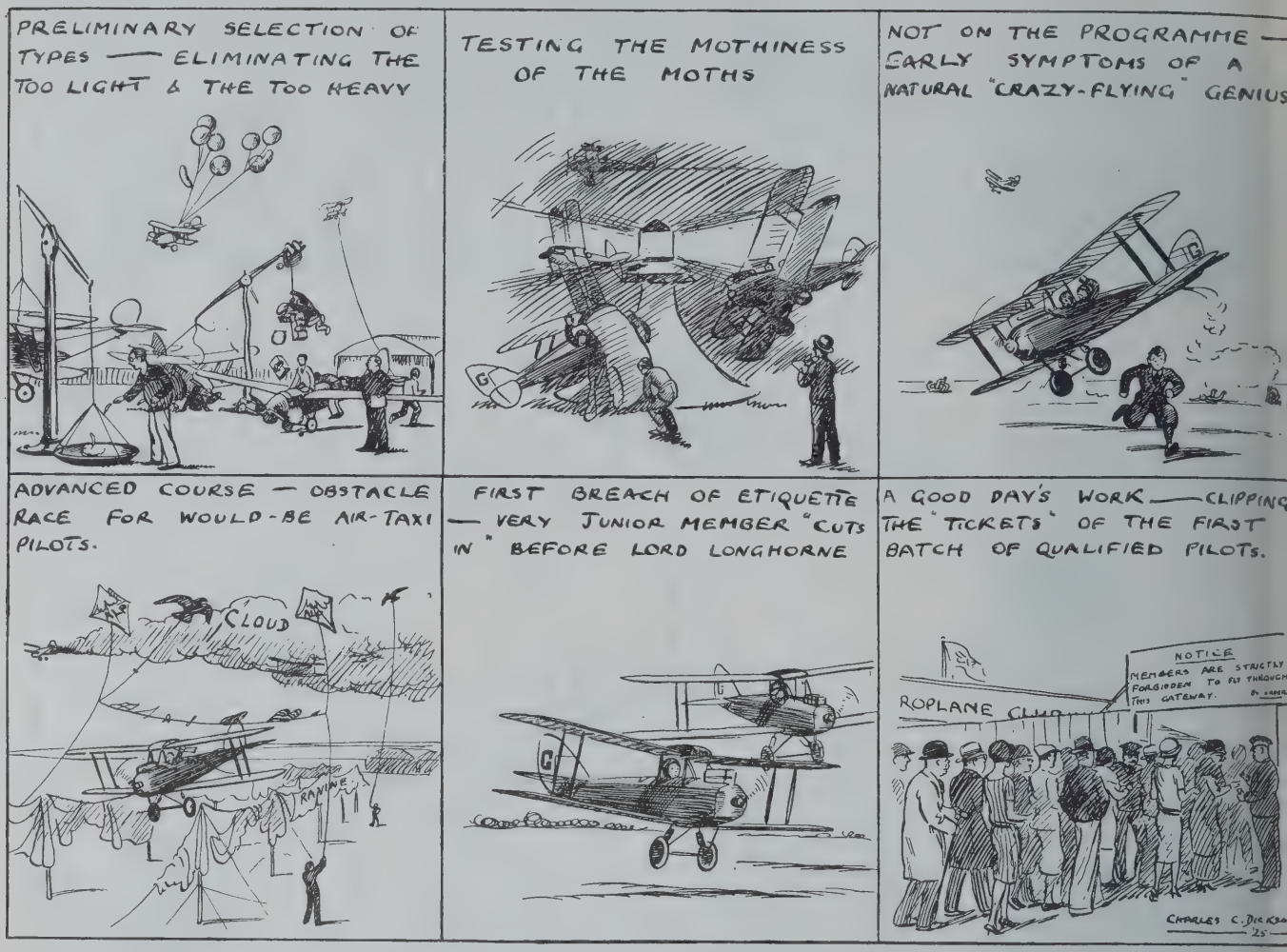
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THE LIGHT AEROPLANE CLUBS HAVE STARTED WORK.



STAG LANE.

On Sept. 8, the London Flying Club completed its first 100 hrs. of instruction and flying since its opening on Aug 19. During that time 60 pupils have received instruction, and the only "mishap" that has occurred has been one punctured tyre, a fact which reflects great credit on the instructors, Mr. Sparks and Mr. Witcombe, the ground engineer, Mr. Michie, the one boy help, and the class of pupil who are receiving instruction.

For the 100 hrs. the Flying Club has used only 352 gallons of petrol. This includes all running on the ground, and in the air, as well as a small amount used for cleaning purposes. So the average petrol consumption for the Cirrus engine works out at 3½ gallons per hour.

Similarly, only 16 gals. of oil have been used. On three occasions the engine sumps have been cleaned out and new oil put in, so that in reality six pints of oil were wasted, thus making a total oil consumption of .96 pints per hour.

These figures definitely establish the petrol and oil consumption of the Cirrus engine under working conditions.

The two "Moths" have given great satisfaction, and look as new now, in their smart grey paint, as they did on the opening day. Both machines have been continuously at work, their average daily time in the air being five hours.

The works of the de Havilland Company seem literally full of Moths. One for the Yorkshire and two for the Lancashire Aeroplane Clubs, have already been delivered. There are also two for the Midland Aero Club, and two for the Newcastle-on-Tyne Club, awaiting engines before delivery.

It may be of interest to mention that the machines of the various clubs are painted distinctive colours, London being grey, Lancashire dark blue, Yorkshire light blue, Midland green, and Newcastle-on-Tyne red.

Three Moths are being sent out to Australia. One is for the use of the Controller of Civil Aviation, Col. Brinsmead, who already has a D.H.37 and a D.H.50a. Two are being delivered to the R.A.A.F., who propose to investigate the possibilities of the Moth as a training machine.

Two Moths have been built to the order of private clients, Wing Cdr. Wynn and a Mr. G. B. H. Munday. These, together with the previous machines mentioned, are awaiting engines.

The two latter machines have been fitted with accommodation for a large suit-case in the coaming behind the back seat.

Other work on hand at the Stag Lane works includes a D.H.51 (140 h.p. Airdisco engine), built to the order of the Lord Carberry, who prefers to be called Mr. Carberry in these days. He owned several aeroplanes before the war. He is now a naturalised American citizen. This machine will be used by Mr. Carberry for commuting between his property near Kenya Colony and Nairobi.

A D.H.50a and a D.H.9 belonging to the Northern Air Lines, are being reconditioned and overhauled preparatory to the reopening of the service between Stranraer and Belfast. Both machines look extremely well in their original red Titanine finish, which is as good now as when the machines were new.

The all-steel "Dormouse" (D.H.42) is ready for the flying trials, and in the same shop is something shrouded in secrecy and canvas screens, which, one believes, will turn out to be an aeroplane.

With the two Moths of the London Aeroplane Club, sundry D.H.9s and Avros of the R.A.F. Reserve School, and various D.H. aircraft indulging in tests, joy-rides, and other aerial manœuvres, the air around Stag Lane on any fine day looks like an aerial imitation of Piccadilly Circus.—L. B.

THE LANCASHIRE AERO CLUB.

Sir Charles Wakefield has accepted the position of President of The Lancashire Aero Club. The previous President was the late Lord Leverhulme. The Lancashire Aero Club has four aeroplanes and flies at Woodford Aerodrome, where it has a hangar lent to the Club by A. V. Roe and Co. Ltd. The Club's two instructors, Messrs. J. Scholes and J. Cantrill, have returned from a special Central Flying School Instructors' Course and are busy training pupils every evening and all day during the week-ends.

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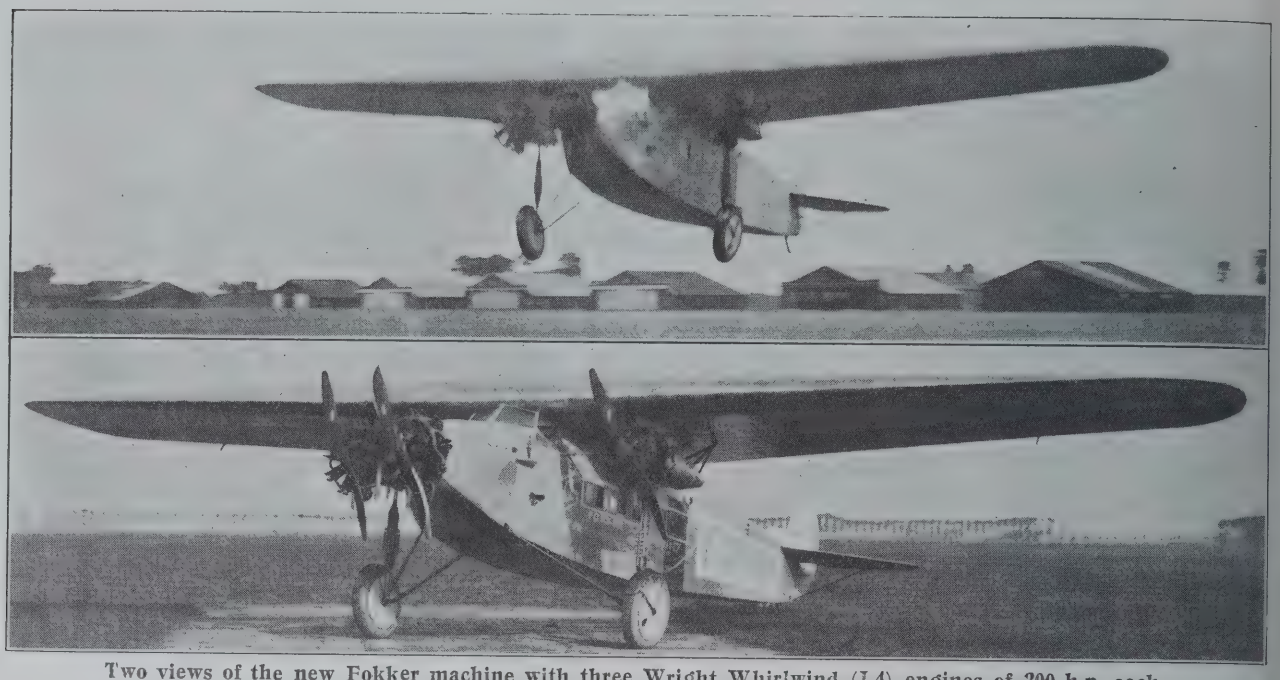
GLOSTER "GREBES" READY FOR DELIVERY.

The Gloster "Grebe" Single-Seater Fighter with Jaguar engine forms a prominent part of the Royal Air Force equipment, and embodies all the results of the extensive experimental work carried out by the Gloucestershire Aircraft Company in machines of high performance and efficient manœuvrability.

WINNERS OF THE AERIAL DERBY, 1921-1922-1923.
HOLDERS OF THE BRITISH SPEED RECORD, 212.2 M.P.H.
RECORD CLIMB OF 19,500 FT. IN 11 MINS. 34 SECS.

(Machine in each of above events fitted with Napier Lion engine.)

THE FOKKER THREE-ENGINED MONOPLANE.



Two views of the new Fokker machine with three Wright Whirlwind (J-4) engines of 200 h.p. each.

On Monday, Sept. 7, Mr. A. H. G. Fokker demonstrated his new three-engined aeroplane before representatives of the Dutch and foreign press at Schiphol (Amsterdam) aerodrome, several officials of the Dutch equivalent of the National Physical Laboratory also being present to witness the flights. The new machine, which is really a further development of the Fokker F.VII monoplane, had already been demonstrated privately on the 5th before officials of the K.L.M. It was noted that the machine, which has three Wright J-4 engines of 200 h.p. each, carrying a load of 8 passengers, 2 pilots, 300 lbs. of ballast (to represent luggage) and 5 hours' fuel, took off after a remarkably short run and climbed at a steep angle considering the load carried.

On Monday, Mr. Fokker, piloting the new machine himself, made several flights carrying the full complement of passengers each time. He showed that the machine could not only be flown horizontally on two engines, but that with only two engines running it could be climbed even when fully loaded. Twice he throttled down one wing engine completely just after the start, at the most critical moment therefore, and the machine climbed very steadily all the same. At a greater height all three engines were shut off and the nose was pulled up, so that the machine stalled. There was no tendency to spin or nose-dive. One engine was opened out again, while the other two were left to stop altogether, the airscrews of the latter becoming stationary. The one engine kept the machine flying almost horizontally, hardly any height being lost. This manœuvre was carried out with each of the three engines in turn, the effect being quite the same, whichever engine was used, the full load of passengers being carried all the time. Mr. Fokker afterwards said that he only had to correct ever so slightly with the controls, when flying on one wing engine only, to keep to a straight course. He found and demonstrated that it was even possible to make a quick turn against the pull of that engine.

During all these experiments the machine remained perfectly controllable and the longitudinal stability was apparently quite as good as on the single-engine Fokker F.VII Napier machine demonstrated at Croydon by Mr. Fokker some months ago. Even when only one or only two engines were running the pilot, as the representatives of the press were able to observe through the open door at the front end of the cabin, let go of the controls entirely now and then. As Mr. Fokker explained afterwards the value of this ease of control becomes especially apparent when night flying or flying in a fog, as it enables the pilot to concentrate his attention on his instruments. Mr. Fokker also pointed out that night flying will become more and more necessary in order to obtain the full advantage of transport by air. This is especially the case in the United States where distances to be flown are so great. This new three-engined Fokker has therefore been specially built to comply with the requirements of the civil aviation companies which will probably take over the night-mail air service from the Government and will run other night air mails in that country. It is also stated that other machines of this type would be built in the U.S. by the American Fokker concern (The Atlantic Aircraft Corporation). This machine can also be equipped with other engines of about the same h.p., such as Armstrong Siddeley Lynx 200 h.p., Salmson 245 h.p., etc.

The N.V. Nederlandsche Vliegtuigenfabriek, otherwise known as "the Fokker Company," may lay claim to have achieved something of a record in the construction of this new monoplane. In the beginning of July Mr. Fokker, who at the time was in the States, gave cable instructions to the Amsterdam factory to develop the F.VII type as a three-engined machine. He gave all principal dimensions and special construction details by cable. Mr. Platz, the firm's chief-draughtsman, immediately took the design and construction in hand. Thanks to Mr. Fokker's own activities the three Wright Whirlwind engines with their airscrews arrived from America in the beginning of August and by the end of August the machine was ready to leave the factory. On Sept. 3 it was loaded on the barges to take it to the aerodrome (transportation from the Fokker factory to the Schiphol aerodrome is always by water along the canals), where the parts were all unloaded by 9 a.m. on Sept. 4. At 4 o'clock the same day the big monoplane was standing ready for flight, tanks filled, engines tested. At 4.30 Mr. Fokker took it up for its first test flight, carrying 4 passengers and some ballast.

Although the fuselage has been lengthened a little, the general lay out is the same on this machine as it is on the ordinary Fokker F.VIIs. There are two pilots' seats with dual control, 8 passengers' seats in the cabin, and there is a lavatory and 2 luggage compartments.

Two wings of different area have been made, either of which may be easily fitted, depending on the load capacity required. The machine has up till now been flown with the smaller wing, the area of which is about 635 sq. ft., being of the same size as the wing of the improved Fokker F.VII single-engined machine recently demonstrated at Schiphol.

With this small wing the new three-engined machine can carry a useful load of 3,200 lbs., including the weight of 2 pilots and fuel for 6 hours' flight at cruising speed, the paying load being about 1,500 lbs.

With this load the maximum speed is about 125 m.p.h. and the climb 3,000 ft. in 3¾ min., 5,000 ft. in 7¼ min.

With the larger wing the load capacity is about 500 lbs. more.

A NEW HIGH-POWERED AERO ENGINE.

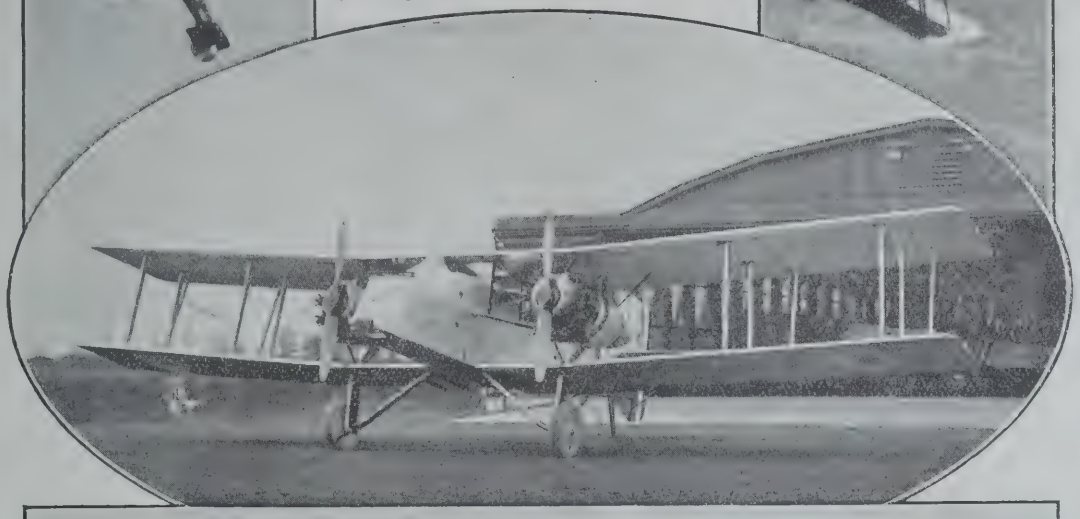
The Engineering Division of the U.S. Army Air Service has let a contract with the Allison Engineering Co., of Indianapolis, for the building of an experimental aero-engine, which it is expected will develop 2,400 h.p. The new engine is of the "X" type, with four banks of six cylinders, will be supercharged and highly geared. The engine has been designed by McCook Field, but the Indianapolis firm is to supply detail design drawings by terms of the contract.

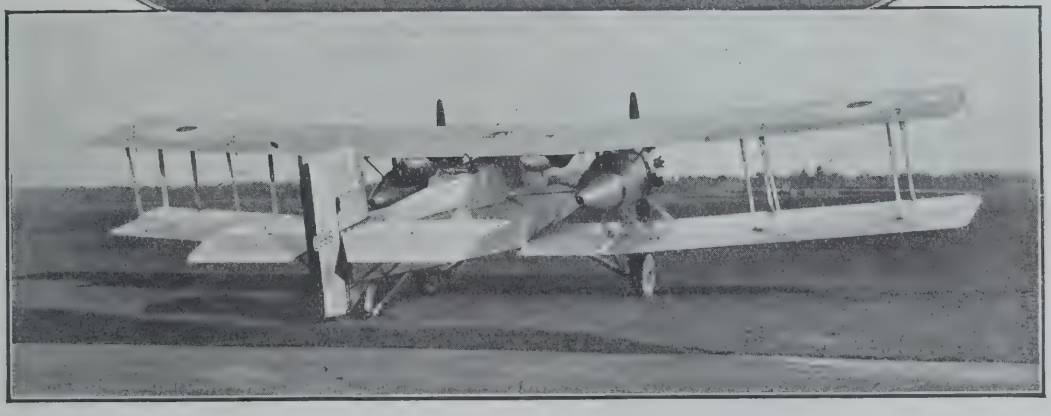


THE Bugle Mark I. High Performance Twin-Engined Day Bomber. Entirely of Metal Construction.

Looping photographs by courtesy of "Flight."







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THE CAPRONI C.A.80 NIGHT BOMBER.



The Caproni C.A.80 Bomber, with two Jupiter engines.

The Caproni Co., the well-known Italian aircraft constructors, have recently produced a twin-engined night bomber known as the C.A.80, which is fitted with two 400 h.p. Bristol Jupiter engines, driving a tractor and a pusher airscrew in tandem. In general arrangement the machine resembles the D.H.10 in having the fuselage slung low down with the bottom wings attached to the top longerons of the fuselage. The wings are of a thick, high-lift section, with a bottom wing of considerably more span than the top. The top plane is flat, and the bottom planes outside the wing struts, or bottom wing centre-section, have a dihedral angle. The two Jupiter engines are mounted over the fuselage and between the wings, on a steel tube mounting, with the main petrol tanks between the engines, from which they are isolated by armoured bulkheads.

The interplane struts consist of two sets of vertical struts uniting the top and bottom centre sections, the bracing of which consists of inclined struts running from the top of the centre section struts down to the centre of the lower centre section, forming in front view, a "Vee." The one set of outer interplane struts are inclined inwardly from bottom to top, and run parallel to a line uniting the top and bottom wing tips. Balanced ailerons are fitted to the bottom planes only. There is accommodation for four, consisting of a front gunner in the nose, a pilot and second pilot, side by side, in one cockpit, in line with the front spar and just behind and below the front engine, and a second gunner's cockpit in the rear of the bottom plane. The tail unit consists of a biplane tail and elevators and a single fin and rudder. The general appearance of the machine is apparent from the attached photographs. Under official tests the C.A.80 gave the following results :—

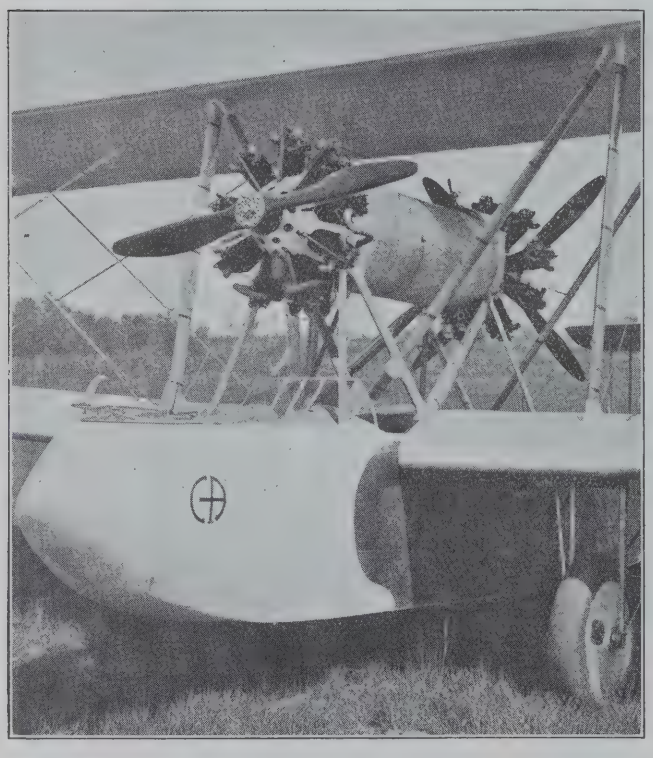
Weight of machine	2,900 kgs.	(6,380 lbs.)
Useful load carried	1,900 kgs.	(4,180 lbs.)
Ceiling	about 4,000 m.	(13,000 ft.)
Speed (engines uncowled)	172 km.p.h.	(107 m.p.h.)

At an altitude of 1,000 m., with 1,400 kgs. of useful load, it was found that the machine climbed slowly, with only one engine running.

With engines cowled, engines tuned up, and different airscrews fitted, the performance has been improved considerably. At a subsequent test the following figures were obtained :—

Climb to 1,000 m.	5 mins. 35 secs.
Climb to 2,000 m.	12 mins. 55 secs.
Climb to 3,000 m.	21 mins. 00 secs.
Climb to 4,000 m.	32 mins. 10 secs.
Climb to 4,500 m.	41 mins. 00 secs.

The flying qualities of the machine are said to be astonishing, and it has provoked much favourable comment and praise from the various pilots who have flown it, as well as from Gen. Piccio and Col. Verdazio, who attended the official tests.





Side-view of the Jupiter-engined Caproni Bomber. Above a "close-up" of the centre section, showing the engine installation.

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We flew under all sorts of conditions, freezing cold and later tropical heat, and the same oil was used in all cases with absolute satisfaction, for my oil was always constant. I have noticed on long runs on Castrol C that my oil pressure would on long oil pressure warming up the engine, and after we had been flying for about twenty minutes, the pressure would stop falling and settle to so many pounds per square inch. After six or seven hours continuous running, even in tropical heat, the pressure would be the same to a pound, as it was twenty minutes after starting. This was a proof of the good body of the oil.

It is so difficult in these days of competition and when there are so many fine oils on the market, to classify in order of merit the various products, but I think that I can truthfully say, that I believe Wakefield Castrol grades of lubricating oil to be the best on the worlds lubricant market.

I am,

Yours very faithfully,

Alan J. Cobham

Comment is needless!

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per day.—Monday, 21; Tuesday, 23; Wednesday, 20; Thursday, 17; Friday, 22; Saturday, 22; Sunday, 11.

IMPERIAL AIRWAYS LTD.:

London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 56, passengers 290, freight 17 tons.

AIR UNION:

Paris—London: Machines 49, passengers 223, freight 14 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 23, passengers 80, freight 2¾ tons.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 2, passengers 7.

SPECIAL MACHINES:

DE HAVILLAND HIRE:

Machines 5, passengers 6.

PRIVATE MACHINE:

Mr. Leslie Hamilton's Martinsyde from France with one passenger.

Total number of trips by British machines: 62, carrying 297 passengers. Foreign machines 74, carrying 310 passengers.

Comparative Figures:

For week ending Sept. 12:

Machines, 136; Passengers, 607; Crews, 184; Total personnel, 791.

Corresponding week, 1924:

Machines, 137; Passengers, 572; Crews, 165; Total personnel, 737.

Corresponding week, 1923:

Machines, 138; Passengers, 549; Crews, 223; Total personnel, 772.

Corresponding week, 1922:

Machines, 121; Passengers, 411; Crews, 215; Total personnel, 626.

Corresponding week, 1921:

Machines, 96; Passengers, 224; Crews, 120; Total personnel, 344.

Corresponding week, 1920:

Machines, 115; Passengers, 285; Crews, 142; Total personnel, 427.

Croydon Notes.

The pilots of Imperial Airways Ltd. have been put into sailor suits, and most of them on meeting have apologised for their disguise. As a matter of fact these uniforms might be a good deal worse. They seem to be an improvement on the old Instone uniform, and there is not the quantity of gold braid that there was in the Instone pattern. The uniform is similar at first glance to that of the mercantile marine.

Personally one is inclined to think that it should have been made of Air Force blue material, and should bear the same relation to the R.A.F. uniform as does the Mercantile Marine to Naval uniform. Why should officers of an air line be made to look like officers of a sea line?

When Imperial Airways Ltd. was first formed it was understood that one of the reasons for the existence of only one company was economy in staffs. It was pointed out that many jobs which with three companies were triplicated, could be run by one person. It was thought that the staff would be cut down by two-thirds, or at least by a half.

The position at the moment is that the Handley Page offices are filled by Imperial Airways Ltd., likewise the Daimler Airways offices, and likewise the Instone Air Line Ltd. offices. And on top of all this one hears that Imperial Airways are about to erect another hut the size of the Instone one, to house extra staff.

No wonder that what seems to be a tin chapel has been erected in the Customs enclosure. Presumably it is for the Directors of Imperial Airways Ltd. to go and pray for forgiveness for squandering public money instead of spending it.

Although the passenger figures for Imperial Airways Ltd. have been so disgraceful this season, the load figures per machine show a distinct improvement and if the Directors had done their duty and kept the Management supplied with machines, there is little doubt that the management would have done their part and a record year would have resulted.

Next year the position is not likely to be any better. The firm should have four Handley Page W.8s (Napiers), a D.H.54 (Rolls-Royce Condor), and a Vickers Virginia (two Rolls-Royce Condors), besides the existing three-engined Handley Page, the two D.H.50s, and perhaps a Vulcan or two.

But it is difficult to believe that they can go on using the old D.H.34s and the Handley Page W.8bs for another year. If they do they are very likely to have a serious accident.

All these machines must have put in far more mileage than they were originally designed to do. And there have been curious stories going round as to parts breaking in the air. Fortunately these breakages have been without serious consequences, but the Directors must know of this, and if there should be a serious accident in the future with these machines it will be exceedingly difficult for the Directors successfully to meet a charge of negligence.

One good thing one hears is that Imperial Airways Ltd. are to test the Savage-Bramson Anti-Stall Gear, as was suggested in these notes recently. It will be interesting to see whether they are able to appreciate the advantages of the gear straightaway, or whether they will turn it down and not take it up finally until it has been adopted everywhere else.

Possibly some of the real star-turn pilots might not appreciate its value for their own personal use, just as some crack car-drivers do not appreciate non-skid tyres. But to the average pilot who flies a machine with a constantly-varying load the gear must prove to be very valuable indeed, and one believes that the safety of machines will be greatly increased and—*messieurs les Dirigeables*—the insurance premiums will be reduced.

The Great British Air Combine last week carried 290 passengers on *all their routes* and for the first time for some weeks have beaten the figures for passengers carried by the French between London and Paris. Moreover, punctuality has improved vastly, and machines almost always got off to time last week.

On Tuesday of last week at the A.D.C. Aircraft side of the aerodrome, Sq. Ldr. Croil, the Canadian Air Force liaison officer in London, was flying the Avro-Airdisco and seemed to be very pleased with it. It will be recalled that Wing Cdr. Barker, V.C., flew the machine recently, and so it looks as though the Canadian Air Force is considering adopting the machine as a training machine. That would be an exceedingly good move, and should point the way to other Governments, including our own.—G. D.

The Kantara-Karachi Air Service.

The following appeared in *The Morning Post* on Sept. 10:—

Air Vice-Marshal Sir Sefton Brancker, Director of Civil Aviation, and Major Birchall and Lieutenant-Colonel Minchin, directors of the Imperial Airways Limited, arrived in Baghdad to-day, having completed their flight across the desert from Cairo to survey the proposed air mail route to India.

Sir Sefton Brancker said that the probable starting place of the Indian air-mail service would be Al Maza, near Heliopolis. The Egyptian Government had displayed a very friendly spirit of co-operation and proposed at their own expense to build and equip an Egyptian air port. The Iraq Government had proved equally accommodating and was now constructing a police post at Rutba Wells, one of the very few watering places between Baghdad and Amman.

To-morrow Sir Sefton will accompany Major Birchall and Colonel Minchin by air to Bushire, whence he will return to Baghdad before proceeding to Teheran to consult the Persian Government concerning the Persian Gulf section of the route. Major Birchall and Colonel Minchin will continue their survey flight to Karachi.

[One does not know what particular grudge *The Morning Post* has against Major Birchall and Col. Minchin that it should style them "directors of Imperial Airways Ltd." On the contrary, one believes that both of them have a considerable knowledge of Aviation, and Col. Minchin is an excellent pilot, a capable organiser and has a very charming personality. The latest news of the party is that our Director of Civil Aviation was seen walking across the Desert two miles from Basra in plus-fours looking for a taxi. As Joe Coyne says, in "No, No, Nanette," "You mustn't do it."—G. D.]

Think Imperially!

The following appeared in *The Daily Mirror* on Sept. 11:—

The first air restaurant car is to be put into service by the Imperial Airways between London and the Continent early next week.

In the huge centre saloon of the air express, which is the largest in the world, are luxurious armchair seats for fifty passengers.

An electric buffet is to be installed, from which a uniformed attendant will supply light meals.

No machine of such size exists, but this rather looks as though Imperial Airways Ltd. are acquiring a school machine on which the Directors may learn something of flying and may have all the comforts of a home at the same time.

A similar paragraph in other papers specifically mentions the Vickers Vanguard with Rolls-Royce engines. This machine carries 24 passengers and not 50.

Multiple-Engined Aeroplanes.

Some time ago in writing upon multiple-engined aeroplanes one expressed the opinion that under certain circumstances a multiple-engined machine might be more dangerous than a single-engined machine. If a single engine stops the pilot is obliged to land, whereas if one engine of three stops and the pilot goes on flying the airscrew of the dead engine may act as a windmill and turn the engine round with the result that broken bits of it may be thrown out and may fall through the wing or otherwise damage the machine and cause a disaster.

Support for this argument was found in the fact that in 1919 a four-engined machine was sent to Newfoundland with the intention of flying the Atlantic. As the late Sir John Alcock actually performed the feat before the other machine was ready those who were responsible for the four-engined job decided to fly it from Newfoundland to New York so as to give a good impression in the United States. After flying for some hours the rear engine on one side (the engines were arranged two in tandem on each side) broke something internally, and the airscrew of that engine, being driven by the slipstream of the leading engine, acted as a windmill, and chewed up the engine's inside so that pieces fell out and did a considerable amount of damage to the machine.

At that time the machine was flying over thick forest country and no landing place could be found, so Major Brackley, who was the pilot, continued to fly in spite of damage, and eventually made a safe landing.

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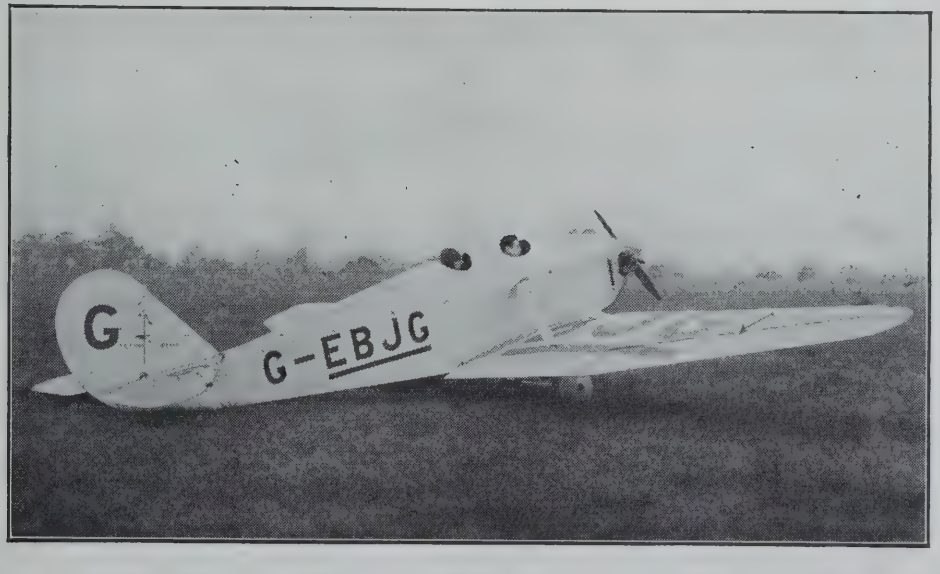
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Nevertheless in such a case there is always the danger of such broken pieces doing very considerable damage and breaking up the whole machine. Consequently if an engine does go dead the airscrew should be stopped from revolving.

Recently in the course of some friendly correspondence with Mr. B. Stephan, the technical director of the N.V. Nederlandische Vliegtuigenfabriek, more commonly known as the Fokker Company, one advanced precisely similar arguments. Mr. Stephan's reply is well worth recording.

I think that you are right that it is no use, if an engine fails, to have it churning round in the air driven by its own airscrew. But on the other hand I must say that if an engine fails it is certainly possible to stop it absolutely by switching off and pulling the machine up, so that it loses speed to such an extent that the airscrew comes to a dead stop. If after that you continue on two engines along a level course the pressure on the stationary propellor is not big enough to put it in motion again.

You can only obtain this last thing by making a very pronounced dive. I am therefore of opinion that there is no reason why an engine should go on churning round in the air driven by its own airscrew when engine failure occurs.

The other day when I flew with Mr. Fokker in the three-engined machine he demonstrated the stopping of the propellors by throttling down and switching off all three motors one after the other. After switching off one motor he pulled the machine up till that motor was stationary, and so on until all three of the motors had stopped. After gliding for a little time he put the nose of the machine down in a dive and restarted first the central and left motor, flew the machine for some time on these two motors and then put her down again, gathering enough speed to start the third motor.

Undoubtedly Mr. Stephan is right, and therefore all that one can say is that when any one engine does go wrong on a multiple-engined machine, pilots should always be sure to stop the dead engine from revolving instead of proceeding on their way and risking serious damage.

GERMAN AIR TRANSPORT ORGANISATION.

In May of this year the two big air transport unions operated by the Junkers Co., the Nord-Europa Union and the Trans-Europa Union, were amalgamated under the name Europa Union. The following are the air lines that now come under the new organisation :—

The Ad Astra Co., Zurich.
The Aero Osaheyhtio, Helsingfors.
The Esthonian Air Transport Co. "Aeronaut," Reval.
The Aerotransport A.B., Stockholm.
The Bayerische Luftlloyd, Munich.
The Dansk Lufttransport A.B., Copenhagen.
The Danziger Luftpost-Gesellschaft, Danzig.
The Junkers Flugzeng-Akt.-Ges., Dessau.
The Latvijas Geisa Satiksmes Akciju Sabiedriba "Aero-Lat," Riga.
The Oesterreichische Luftverkehrsgesellschaft A.G., Vienna.
The Rumpler-Luftverkehrs-Akt.-Ges., Munich.
The Schlesische Luftverkehrs-Akt.-Ges., Breslau.
The Sudevestdentsche Luftverkehrs-Akt.-Ges., Frankfurt-on-Main.
The Sashsische Luftverkehrs-Akt.-Ges., Dresden.
The Ruhr-Luftverkehrs-Akt.-Ges., Essen.
The Junkers-Luftschiffahrts-Verkehrs-Akt.-Ges., Berlin.

On Sept. 7 the first General Meeting of the new Union was held in Dresden. It was decided to increase the capital to 10,000,000 marks (£500,000) and the following directors were elected: Dr. Sven Hedin, Professor Junkers, Herr Jarres (Burgomaster of Duisberg and former candidate for the Presidency), Herr E. Rumpler, and Herr Reinhold (Finance Minister of Saxony).

Herr Sachsenberg, representing the managing company, stated that during the coming winter experiments would be made on certain routes to determine whether a continuous service could be maintained all the year round. Another point discussed was the standardisation of aircraft so as to lead to a considerable saving in running costs. Naturally, should this come about, all aircraft used will be constructed by the Junkers Co.

BRISTOL AERO-ENGINES IN MOROCCO.

One of the outstanding features of the recent operations of the French and Spanish forces against the Riffs has been the co-operation of the big Jupiter-engined Goliath bombing aeroplanes against the Riff capital and against important Riff bases north-west of Taza. In one day ten tons of bombs were dropped over Ajdir by five of these machines flying at a height of 6,000 feet. At least two squadrons of this type are on service with the French Army in Morocco, and it is understood that they will be reinforced by further squadrons if necessary.

These machines are of special interest because they are fitted with Bristol-type air-cooled Jupiter engines. These not only ensure a high standard of reliability but they normally carry 400 kgs. more load than the same type of machine fitted with water-cooled engines of even greater nominal power, and the performance is also better. In fact, under trial the Goliath machine fitted with Jupiter engines put up exactly the same performance for speed and climb as its prototype with water-cooled engines, even when the former was carrying 700 kgs. more load than the latter.

On a basis of experience the French authorities to-day are all out for the Jupiter engine, more especially for service in the Mediterranean, for the good and sufficient reason that it allows of the carrying of the maximum military load and the highest performance, and the reliability of the engine under the most varied conditions is assured.

A NORTH POLE AIRSHIP PROJECT.

Reuter's representative in Moscow, cabling on July 23, says :—

Capt. Bruns, of the Norwegian Air Force, has arrived here from Berlin and has submitted to a conference of experts his scheme for a scientific air expedition to the Arctic in 1927. The expedition is to be led by Dr. Nansen, and will use a dirigible of 150,000 cubic metres capacity, 245 metres long, and with a lifting capacity of 55,000 kilogrammes in addition to the fifty men of the crew.

The route to be followed will be from Murmansk and Franz-Josef Land, via the North Pole to Alaska or Anadyr and back. The aim of the expedition is to make investigations regarding the possibility of establishing regular air communication across the Arctic between Europe and America, via Siberia and Japan. It is estimated that the flight from Murmansk to Anadyr will take 50 hours.

NEW COMPANY.

Hucks' Night Fliers Limited.—Private company. Registered Sept. 4. Capital £100 in £1 shares. Objects: To acquire from E. J. Hucks, F. C. Armstrong and C. de Bounevialle patent No. 14464 for improvements in or relating to apparatus for advertising and similar purposes, to carry on business as advertising agents and contractors; to manufacture, hire and display illuminated signs, to manufacture and deal in aeroplanes, hydroplanes, airships, balloons, kites, road and rail vehicles, ships and boats, to provide and erect aerodromes, landing stages, etc.

The directors are: E. J. Hucks, 47, Colville Gardens, Bayswater, W.11, publisher. F. C. Armstrong, 37, Somerset Road, Harrow, consulting engineer. C. de Bouneviallo, 45a, Edith Road, West Kensington, W.14, consulting engineer. G. Sechiari, 5, Pembridge Square, W.

Qualification: 1 share. Secretary: C. de Bounevialle. Solicitors: Arthur Mallett and Co., 32/4, Theobalds Road, W.C.1. Registered office: 32/4, Theobalds Road, W.C.1.

MORTGAGES AND CHARGES.

Central Aircraft Co. Ltd.—Debenture dated Aug. 28, 1925, to secure £1,000 charged on the Company's undertaking and property, present and future, including uncalled capital. Holder: B. M. Gillett, Wood View, Royston Park, Hatch End, Mdx

Northern Air Lines Ltd.—Issue on Sept. 4, 1925, of £250 debentures part of a series already registered.

PERSONAL NOTICES.

Death.

MONCKTON.—On Sept. 8, at the British Hospital, Hinaidi (Iraq), of pulmonary tuberculosis, Thomas Charles Campbell Monckton, Lt., R.A., attached R.A.F. H.Q., Baghdad, only son of Mr. and Mrs. T. E. Monckton, of "Wardley," Deal (formerly Uppingham), aged 28.

Marriages.

ALEN-BUCKLEY—O'CARROLL.—On Sept. 8, at St. Andrew's Church, Dublin, Herbert William Alen-Buckley, D.F.C., only son of the late William H. Buckley, of Cultra House, Cultra, Co. Down, and Mrs. Alen-Buckley, to Blanaid, youngest daughter of Dr. and Mrs. O'Carroll, of 43, Merrion Square, Dublin.

WILLIAMS—ANSELL.—On Sept. 2, at the Parish Church, Rugby, Sq. Ldr. G. G. Algernon Williams, third son of the late Capt. G. S. Williams, 8th Hussars, to Kathleen Mary, daughter of the late Colonel G. K. Ansell, 5th Dragoon Guards.

Births.

ADAMS.—On Sept. 9, at Clifton, Shefford, Beds, to Sylvia, the wife of Flt. Lt. F. P. Adams, R.A.F.—a son.

OUTRAM—On Sept. 8, at Woodlands, Ingatestone, to Lt.-Col. and Mrs. H. W. S. Outram—a daughter.

SWENY.—On Sept. 11, at 26, Lansdowne Road, Croydon, to Lillian, wife of Lawrence Sweny—a son.

WHITWORTH-JONES.—On Sept. 6, at Burlington, Queen's Road, Felixstowe, to Nancy, wife of Flt. Lt. J. Whitworth-Jones, R.A.F.—a son.

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THE TROOPER:—A troop-carrying Vickers Victoria (Napier Engines) at the Hinaidi Aerodrome, near Baghdad. In the background can be seen a Vickers Ambulance. These types play a big part in the work of the R.A.F. in Iraq which Sir Samuel Hoare described as "Control without Occupation."

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ON THE SCHNEIDER TROPHY COMPETITION.

On Saturday next, September 26, the British team which hopes to compete for the Schneider Trophy at Baltimore on October 24 will leave Southampton on the Atlantic Transport Company's steamer *Minnewaska*. The best wishes of everybody concerned with British aviation will go with the men and the machines.

The Schneider Trophy is to-day the only classic International Flying Competition. The first of the international classics was the Gordon Bennett Cup which was won outright by the French after three successive wins. This was succeeded by the Cup presented by the late Henri Deutsch de la Meurthe and was commonly known as the Deutsch Cup. It also was won by the French with two successive wins.

An attempt to provide a successor was made by an American resident in Paris known as Commodore Beaumont. His name was originally Schönberg and he made what must have been a comfortable fortune out of a fleet of stores in Kansas City. Unfortunately the Coupe Beaumont has never excited international rivalry and the two competitions which have been held have been purely French affairs, the flying being done over the vast waste of Istres near Marseilles, whither certainly no British competitors are ever likely to journey.

Therefore the Schneider Trophy remains alone in its glory as the World's great International Flying Competition.

The Schneider Idea.

The Trophy was presented to the Féderation Aéronautique Internationale by M. Jacques Schneider, the son of the head of the great Schneider gun works, for a competition between seaplanes of all nations. The details of the competition have been varied from time to time by the Committee of the F.A.I. but two features have always remained, one being that the competing machines must endure a mooring-out test, riding at moorings on the water for a certain time before flying in the competition, and the other being that the flying itself must be done over open sea water,—*plein mer*.

The time of the mooring test has been altered every now and then and a very wide interpretation has been put on the phrase "*plein mer*," in that the competition has always been flown over the waters of a bay which are likely to assure comparatively peaceful conditions for starting and alighting.

For example, the competition has been held over the Bay of Naples and over the Bay of Monaco and over the Bay between Bournemouth and Swanage, all of which provide fairly sheltered water, and it has been flown over the Solent, which is almost entirely land-locked. And it is now to be flown over Chesapeake Bay, which is still more land-locked than the Solent in that it only has one narrow outlet to the open sea. Consequently one imagines that in the estimation of the F.A.I. the words "*plein mer*" mean any sort of water which is a little too salt to drink.

The original intention of M. Jacques Schneider was to encourage the production of genuine sea-going aircraft. But in effect the competition has developed—or degenerated, if one looks at it from another point of view—into a series of speed tests against the clock, until now the problem of the designer of a machine which is intended to compete for the Schneider Trophy is simply to produce the fastest possible machine which can get off the water and get onto it again without breaking itself and killing the pilot.

Actual seaworthiness does not enter into the question. For as one has already mentioned, arrangements are always made to hold the competition in a spot which is as sheltered as possible, so that there will be the least possible risk of losing the machines while moored out according to the rules.

The History of the Trophy.

The history of the various competitions which have been held for the Schneider Trophy is of considerable interest. So far as one can recollect no complete record of these events has yet been published. One has therefore obtained what appear to be the most interesting facts and figures about the competition and one wishes to express one's indebtedness to Miss Schutte of the secretarial department of the Royal Aero Club for providing the following facts and figures :—

The first competition was held at Monaco on April 16, 1913, and was won by M. Prévost on a Deperdussin float seaplane with a 160 h.p. Gnome engine. He covered 150 sea miles in 3 hrs. 48 mins. 22 secs., his speed thus being 39.4 knots (45.25 land miles per hour).

The second competition was held at Monaco on April 20, 1914, over the same course, and was won by Mr. Howard Pixton on a Sopwith float seaplane with a 100 h.p. Monosoupape Gnome engine. He covered 150 sea miles in 2 hrs. 0 mins. 16 secs., his speed being 74.7 knots (86 land m.p.h.).

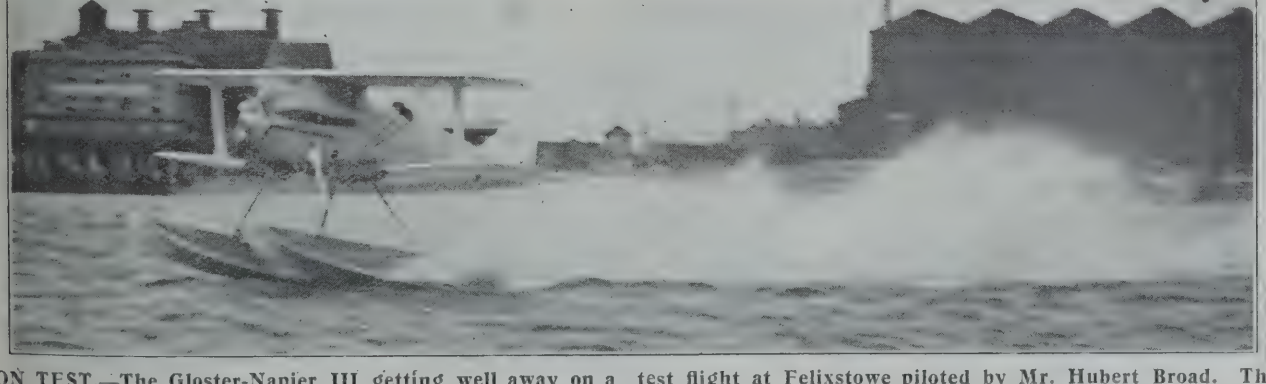
In 1915, 1916, 1917 and 1918 the competition was suspended owing to the War.

Therefore the third competition was flown at Bournemouth in 1919 when the race was annulled because, owing to fog, no competitor covered the correct course. Nevertheless because the Italian aviator, Signor Janello, on a Savoia flying boat, came nearest to covering the correct course the possession of the Cup was held in suspense but the competition the following year was held in Italy.

The fourth competition was held at Venice on September 20-21, 1920. No English machines competed. The French machines were wrecked during the seaworthiness test and the winner was Signor Luigi Bologna on a Savoia S.19 flying boat with a 550 h.p. Ansaldo engine. On this occasion the distance was 202 sea miles which were covered in 2 hrs. 10 mins. 35 secs., a speed of 92.9 knots (106.7 land m.p.h.).

The fifth competition was held on August 6-7, 1921, at Venice and the winner was Signor Giovanni De Briganti on a Macchi 7 flying boat with a 260 h.p. Isotta-Fraschini engine. The distance was 200 sea miles and the time was 2 hrs. 4 mins. 29 secs., a speed of 96.5 knots (110.9 land m.p.h.)

The sixth competition was held on August 10-12, 1922, at Naples. The winner was Mr. H. C. Biard on a Supermarine Sea Lion II flying boat with a 450 h.p. Napier Lion engine. The distance was 200.2 sea miles and the time was 1 hr



ON TEST.—The Gloster-Napier III getting well away on a test flight at Felixstowe piloted by Mr. Hubert Broad. The secrets are concealed behind the spray.



A SECRET WORTH CHERISHING.—The Supermarine-Napier S.4, our fastest machine, which Mr. Henri Biard will fly.

34 mins. 51.4/5 secs. The speed was 126.8 knots (145.7 land m.p.h.).

The seventh competition was held at Cowes on September 27-28, 1923. The winner was Lieutenant David Rittenhouse, U.S. Navy, on a Curtiss float seaplane, C.R.3 type, with a 465 h.p. Curtiss D.12A engine. The distance was 186 sea miles covered in 1 hr. 12 mins. 26-4/5 secs. The speed was 154 knots (177.38 land m.p.h.).

The eighth competition was to have been held at Baltimore on October 24-25, 1924. British and Italian machines had been entered but the Italian machines made no attempt to appear and the sole and only British entry was wrecked a day or two before it was due to leave for the States. Consequently the American Navy who had entered on behalf of the United States refused to fly over the course and claim a win as was their right.

True Sportsmanship.

This act of self-abnegation on the part of the Americans is one of the finest examples of true sportsmanship in the history of international competitions. One of the conditions of the Schneider Trophy Competition is that in order to acquire permanent possession of the Trophy a country must win it three times altogether in the space of five years. If the Americans had chosen to claim a walk-over, or fly-over, they would then have registered two successive wins and if they won again this year the Trophy would belong permanently to the National Aeronautic Association of the United States.

As it is, even if the Americans win again this year they have either got to win it still again next year, 1926, in order to secure three necessary wins, or else they will have to win it three times more altogether in the next five years. Consequently every nation which still has a hope of winning the Schneider Trophy is under a very distinct obligation to the United States for having sacrificed last year the interests of American aviation to the interests of the highest kind of sportsmanship.

The position now is that out of the eight competitions that have been organised France has won the Trophy once, America has won it once, England has won it twice, and Italy has won it twice. Once the competition was annulled. And once the competition did not take place. If the Italians win this year they keep the Trophy.

Official Interest.

In the two competitions which were held before the War there was no official interest concerned. The expenses of the various competing machines were paid entirely by the firms which built the machines.

When England won the Trophy for the first time Mr. T. O. M. Sopwith, who is now Chairman of the Society of British Aircraft Constructors but who was then a young sportsman who might fairly be described as merely dabbling in aircraft construction although he had already built the most efficient aeroplanes constructed in England up to that time, paid all the expenses of taking a machine and its pilot and crew to Monaco.

In those days, as to-day, the opulent Patrons and Councillors of the Royal Aero Club spent just about as little money on aviation as possible.

Immediately after the War the various aircraft constructors, being still wealthy as the result of war contracts, were able to do things in style, but still had no direct Government support. The Fairey, Sopwith and Supermarine machines with the Avro in reserve which represented Great Britain at Bournemouth in 1919 were all built as private enterprises. And one believes that the Savoias which competed in 1919 and 1920 and the Macchi which won in 1921, were equally entered purely as a business proposition. But they were competing at home and consequently were put to the minimum expense.

Therefore the greater credit was due to the Supermarine Company for having gone to all the trouble and expense of building a special machine and sending it with its pilot and crew all the way to Naples to win the Trophy in 1922.

The direct participation of Government departments in the competition began in 1923 when the U.S. Navy Bureau sanctioned not only the building of the Curtiss machines which came to Cowes but actually paid the expenses of sending the pilots and crews to England and sent the warship *Pittsburg* to grace the occasion. One uses the word grace advisedly, for although the U.S. Navy itself says that the *Pittsburg* is the ugliest warship afloat practically none of the aviation people at Cowes knew enough about warships to offer any æsthetic criticism, and we all regarded her as being immensely impressive and accepted her presence as a very graceful acknowledgment by the U.S. Navy of the importance of aviation—apart from her saxophone band and her cocktail recipe.

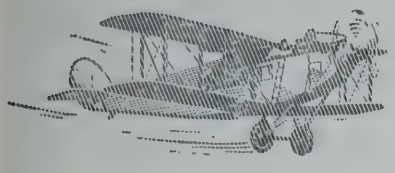
The U.S. Example.

This official participation in the competition really arose from the rivalry between the Air Services of the U.S. Army and the U.S. Navy. Both the Army and the Navy had had special



ONE OF THE ENEMY.—The Italian entry, a Macchi boat dr iven by 425 h.p. Curtiss D.12 engine.

Follow their lead!



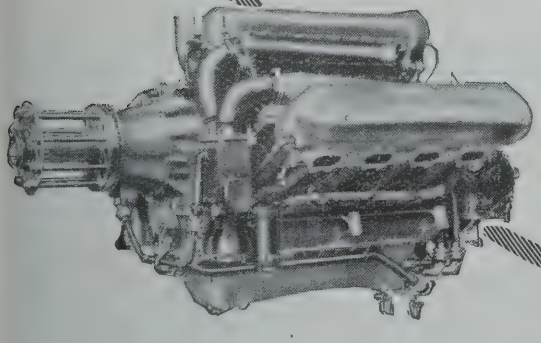
Orders have been placed for Napier aero engines by the British Government and many of the large and small Powers.

The Napier is universally adopted because it has proved itself reliable, efficient, speedy and economical.



Major Zanni flying a Napier engined Fokker aeroplane covered the distance from Amsterdam to Tokio (10,000 miles) in 22 days' flying without having to touch his engine.

One Napier engine in use by Imperial Airways has covered 170,000 miles and is still in service.



NAPIER

Water-Cooled

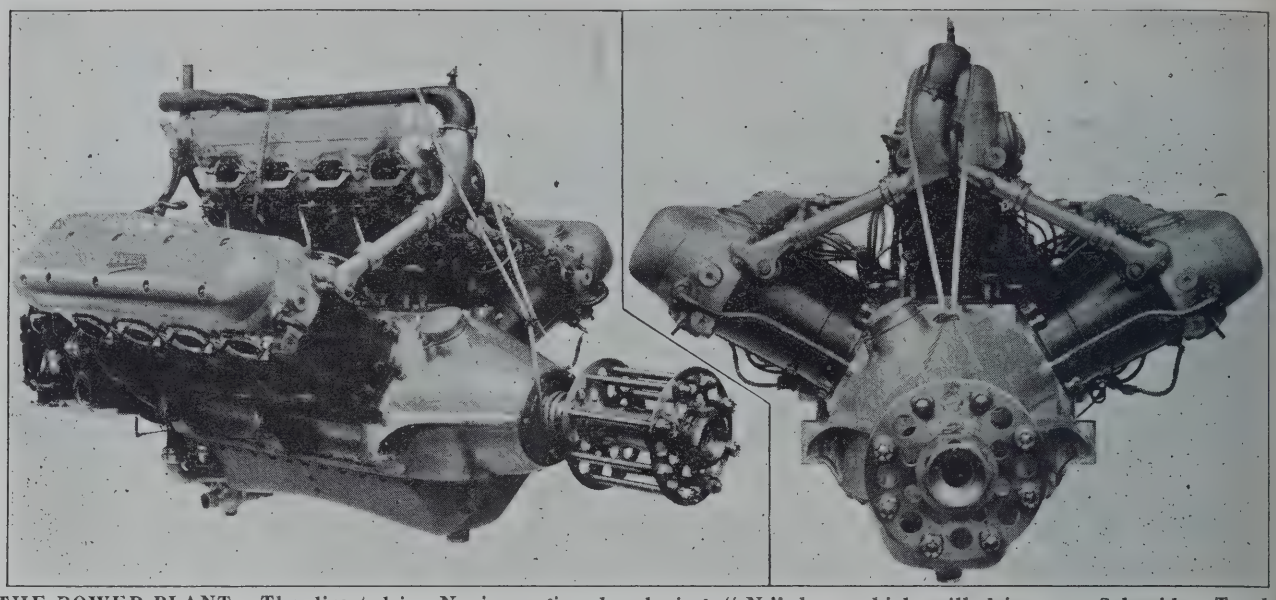
AERO ENGINES

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A limited number of a handsomely produced Napier album, illustrating latest type aeroplanes, are available at one guinea, the published price.



THE POWER PLANT.—The direct drive Napier engine developing "N" h.p. which will drive our Schneider Trophy entries.

racing aeroplanes built for the Pulitzer Trophy competitions in 1920-21-22. This competition in 1922 was won by a machine belonging to the U.S. Navy and the same machine together with a sister ship was altered and still further cleaned up at the Navy's expense to compete for the Schneider Trophy in 1923.

The machines which the Americans had ready for the competition in 1924 were the previous year's machines which flew at Cowes and a third machine which was the previous year's winner of the Pulitzer Trophy still further reduced in span and still further streamlined and fitted with floats.

What the speed of the fastest of them really was nobody ever quite knew. While one was in the States at the time Lieut. Rittenhouse, who was testing the Pulitzer machine at Port Washington near the Curtiss Factory, claimed to have covered a measured course in a straight line at something like 227 m.p.h. But this was never put forward as an official figure and even if it were accurate it would probably only represent about 200 m.p.h. round the course after allowing for slowing at the turns and slipping outwards.

Speeds.

Readers must not imagine that because the speed round the course was 177 m.p.h. in 1923 and because a speed of 227 m.p.h. was claimed in 1924, the actual speed of the machine has been increased 50 m.p.h. in the meantime and that a similar increase to something like 277 m.p.h. may be expected this year.

Incidentally when one says that Lieut. Rittenhouse claimed to have done 227 m.p.h. one is not casting the slightest doubt on the accuracy of his statement. The time was taken by the pilot himself on an ordinary stop-watch as he was flying between two points on the coast. Consequently allowance would have to be made for the personal element in the timing—that is to say the ordinary delay or acceleration due to nerve reaction. And allowance would have to be made for the wind which may have been ahead or astern or abeam.

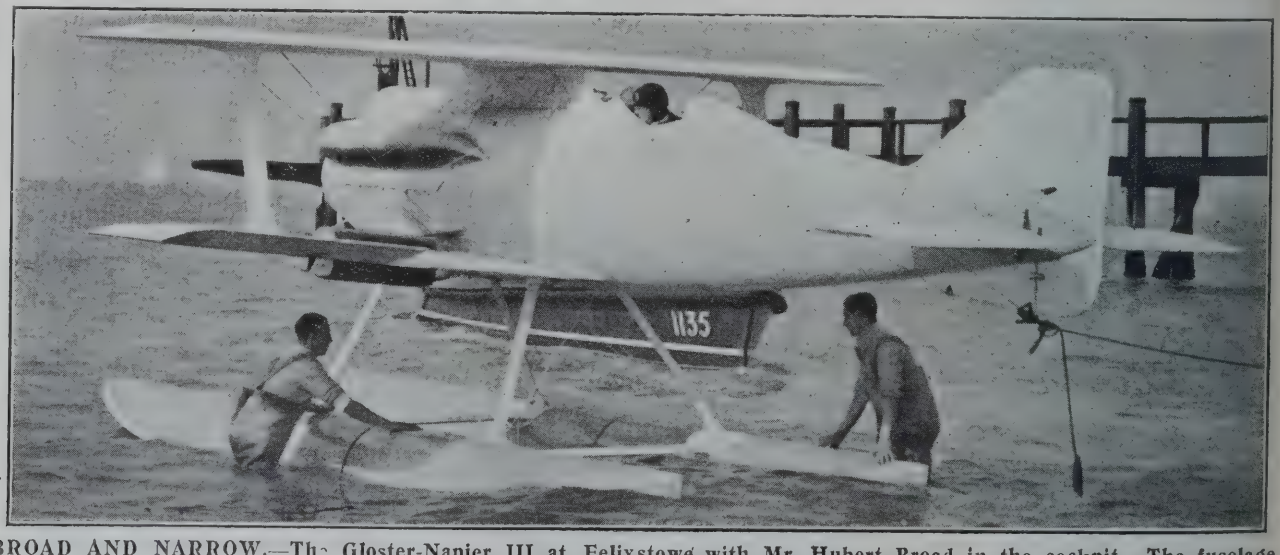
The time was merely mentioned verbally from one individual to another to give some notion of what the machine was doing. And neither Lieut. Rittenhouse nor the Curtiss Company regarded it as being in any way accurate at the time.

Personally one is inclined to believe that if any machine does 230 m.p.h. round the course it will win. So far as one can gather the course at Baltimore measures 50 kilometres and is triangular in shape. This has to be covered seven times to make up a total distance of 350 kilometres or roughly 200 miles. And so there will be twenty corners, more or less sharp, to be turned by each pilot during the competition. The longest lap of the course is only about ten miles and so an aeroplane of excessively high speed would only be about doing her best when the pilot would have to throttle down to get round the next corner.

The Competitors.

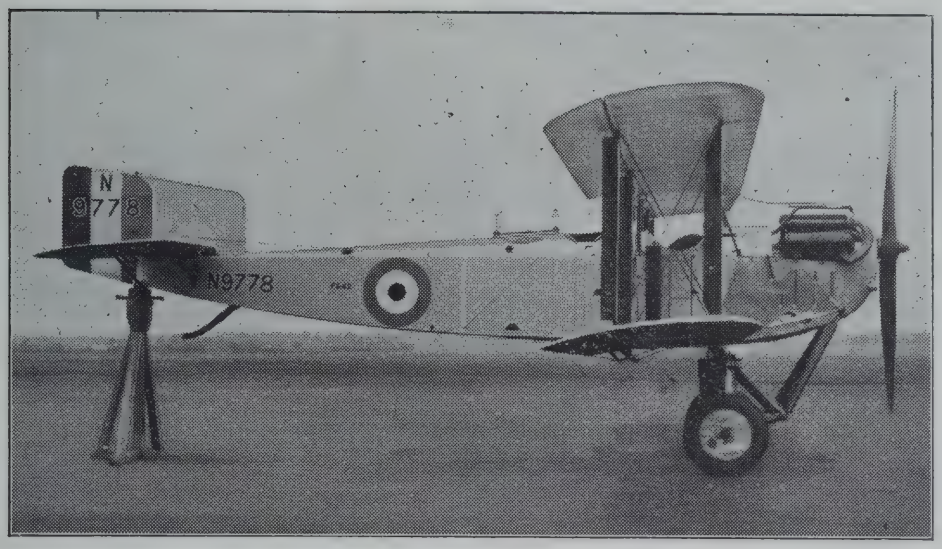
Two of the machines which the Americans will use this year are quite new, though the design is a development of the Curtiss series of racing machines which began in 1920. So far as one can gather these same machines will be flown in the Pulitzer Trophy Race with wheels, and will be fitted with floats for the Schneider Trophy Race. They are biplanes with the Curtiss V.1400 engine which is said to give 620 h.p. It is a development of the Curtiss D.12, which put up such very fine performances last year.

As in the case of the other entrants the actual design and specification of the new American machines has been kept as dark as possible and presumably photographs of the machine will be "released," as the newspapers call it, for



BROAD AND NARROW.—The Gloster-Napier III at Felixstowe with Mr. Hubert Broad in the cockpit. The fuselage is very narrow and only just wide enough for the pilot.

R·A·F· TYPES — No 5.



THE FAIREY III.D. AEROPLANE.

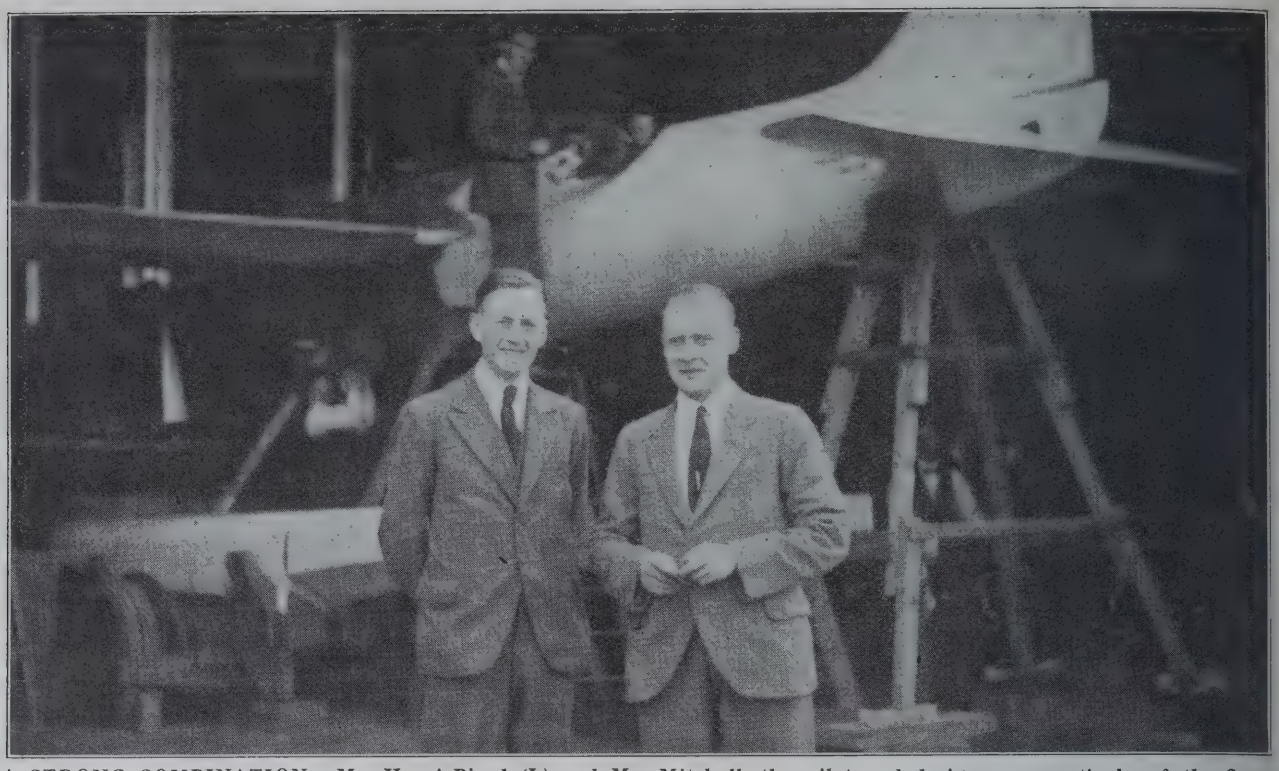
With the exception of the wheel type undercarriage, which enables it to alight on land or on a ship's deck, the Fairey III.D. Aeroplane is in all essential details the same as the III.D Seaplane.

This wheel undercarriage is interchangeable with the float undercarriage, therefore the machine can be converted to a Seaplane or vice versa at a few hours' notice.

FAIREY AIRCRAFT

THE FAIREY AVIATION COMPANY, LTD.

HAYES, MIDDLESEX. HAMBLE, Nr. SOUTHAMPTON.



A STRONG COMBINATION.—Mr. Henri Biard (L) and Mr. Mitchell, the pilot and designer respectively of the Supermarine-Napier S.4, which is seen in the background.

publication just about this date. The pilots are Lieuts. Cuddihy and Ofstie.

One of last year's machines will be flown by Lieut. Conant so as to make up the full team of three.

Italy is sending one machine for the competition, and THE AEROPLANE is greatly indebted to General Guidoni, the pioneer aviator, who is now Air Attaché at the Italian Embassy, for the photographs which appear herewith. General Guidoni says that the machine has been built by the Macchi Company of Varese and has successfully passed its trials. It is driven by a Curtiss 425 h.p. engine—the D.12. The pilot will be Signor De Briganti who won the Schneider Trophy in 1921.

The British entries are one Supermarine float monoplane, the Supermarine-Napier S.4, built by the Supermarine Aviation Works Ltd. of Southampton, and one float biplane, the Gloster-Napier III, built by the Gloucestershire Aircraft Co. Ltd. of Cheltenham.

In each case the engine is a specially constructed Napier Lion in which the airscrew is driven direct on the crankshaft instead of being geared down by spur gearing. Normally the Napier Lion gives 450 h.p., but with the direct drive and a higher rate of revolution the horse power is considerably increased. All sorts of guesses have been given at the horse power of these engines, ranging from 550 up to 700 h.p.

At the higher rate of revolution and presumably with increased compression naturally these engines will not stand up to the same amount of continuous hard wear as the standard type Lion. But as the actual flying in the competition will only take about three-quarters of an hour and as there will be very little practice flying done with the actual racing engines, one may assume that the engines will stand up to the test with a good many hours of flying to spare.

THE AIR MINISTRY'S PART.

Both the machines and their engines have been built to the order of the Air Ministry as experimental types and have been loaned to the constructing firms to enter for the Schneider Competition. Because the machines have been built to an official order they become subject to the Official Secrets Act just as if they were war machines.

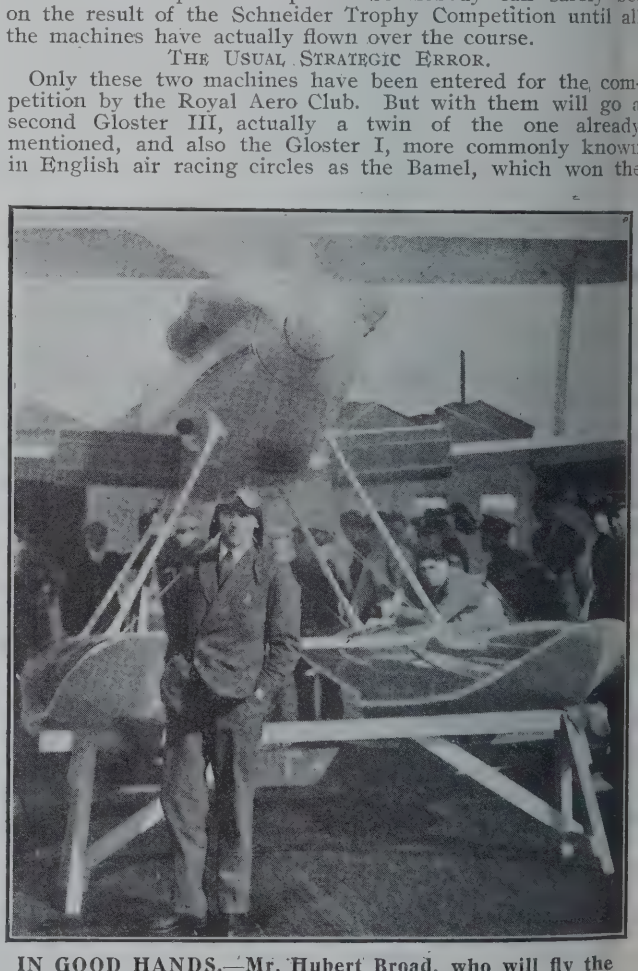
Naturally one is all in favour of keeping as secret as possible the design and constructional details of any machine which is built for an international competition of this kind, just as one would be in favour of keeping secret the details of the lines of a racing yacht which was going to compete for the America Cup. But one does think that the Air Ministry has rather overdone the secrecy business.

That is the worst of Government departments. They start out with a perfectly rational idea which has everything to commend it. But individual officials are so apt to over-operate their own rules and regulations.

One may be fairly certain that so far as details of our Schneider Trophy machines are concerned the Americans, by way of their excellent and highly efficient Air Attaché, Commander John Towers, whose departure from this country everybody regrets, were, to use the late Sir Walter Raleigh's phrase, "perfectly instructed." But as the actual designers and constructors of the machines themselves did not know exactly what their speeds were until about a week ago, we may assume that our American brothers are as ignorant as ourselves on that particular point. So nobody can safely bet on the result of the Schneider Trophy Competition until all the machines have actually flown over the course.

THE USUAL STRATEGIC ERROR.

Only these two machines have been entered for the competition by the Royal Aero Club. But with them will go a second Gloster III, actually a twin of the one already mentioned, and also the Gloster I, more commonly known in English air racing circles as the Bamel, which won the



IN GOOD HANDS.—Mr. Hubert Broad, who will fly the Gloster-Napier III.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Aerial Derby in 1921 and 1922 and 23, and has since been modified in various ways and fitted with floats.

The second Gloster III will be a reserve machine in case of accident to either its sister or the Supermarine, and the Gloster I will be used for practice over the course or may conceivably be flown in the race if two of the other machines are put out of action. Naturally she is not as fast as any of the other three but in a competition of this sort, as in motor racing, it is by no means impossible for the slowest machine in a competition to become the actual winner owing to accidents to the faster machines.

As usual the Royal Aero Club has distinguished itself by making a strategic error of the first order. When the time came for challenging for the Schneider Trophy the R.Ae.C. only entered two machines because it was only assured that the Supermarine Company and Gloucestershire Company would build one machine apiece. If the Club, with its wealthy Patrons and Members of Council, had seen fit it could have entered three machines and have trusted to luck that somebody would have produced a third machine to send over and thus make a complete team against the three American machines. In any case the old Gloster I would have been available.

As it is we are actually sending four machines to the States of which only two can take part in the competition if all of them remain in perfect flying order. Thus everything being equal so far as the reliability of engines and aeroplanes is concerned, and supposing that the speeds of all the machines were equal, the Americans would still have three chances of winning against our two. Still, we may console ourselves with the idea that we have a two-to-one chance against the Italians as they are only sending one machine.

Two Methods.

Irrespective of the relative speeds of the American, Italian and British machines there will be much interest in seeing how the speeds of the Supermarine and Gloster compare.

Mr. Mitchell of the Supermarine Company has pinned his faith to reducing head-resistance by building a cantilever monoplane and an undercarriage without any bracing wires. It would be difficult to imagine how he could clean up the exterior of his machine to a greater extent. Short of sandpapering it all over and oiling it, as legend tells us the skippers of the Mississippi steamers used to treat their boats in the days when they sat niggers on the safety-valves to raise more steam, one cannot imagine head-resistance being further reduced. A machine built on these principles must come out heavier than a braced biplane.

Mr. Folland, on the other hand, has apparently trusted to the lighter biplane structure with a wire-braced undercarriage to get back by saving weight what must be lost through the head-resistance of wires and struts. At the same time it is difficult to see how the head-resistance of the Gloster could be reduced any further without going in for an entirely different method of construction.

The Pilots.

The pilots are Mr. H. C. Biard for the Supermarine and Mr. H. S. Broad for the Gloster, with Mr. H. C. L. Hinkler as reserve.

Mr. Biard learned to fly at the Grahame-White school at Hendon in 1912. During the War 1914-18 he served in the R.N.A.S. And since the end of the War he has been the test pilot of the Supermarine Co. All their multifarious and diverse types have been flown by him, so he has had vast experience. He can justly claim to be the *doyen* of civilian pilots, for he has certainly flown since an earlier date than any other.

Mr. Hubert Broad learned to fly during the War and saw much service on Camels in the R.F.C. and R.A.F. Since the War he has flown continuously for the De Havilland Co. since 1920. In the interval he flew in the United States with a machine of his own, and also acted as a "stunt" pilot for the Welsh Aviation Co. He has made many notable flights from England to and round the Continent.

Mr. Hinkler, more commonly known as Bert, was a Camel pilot in the R.A.F. and after the War connected-up with the Avro Co. On a Baby Avro with 35 h.p. Green engine he made a notable flight from London to Turin non-stop, and from Sydney, N.S.W., to Bundaberg, Queensland. Of late years he has been the Avro Co.'s test pilot and has flown about as many various types as any pilot in this country.

The O.C. Team.

The British team will be in charge of Captain C. B. Wilson, M.C., late R.A.F., representing the Royal Aero Club. Captain Wilson is taking command in place of Lord Edward Grosvenor, who is unable to go to the States as he has been appointed to command the first-born Squadron of the Auxiliary Air Force.

Captain Wilson has long taken a keen interest in the sporting side of British aviation and as he is entirely unconnected with anybody or anything concerned with the Aircraft Industry he is exactly the right man for the job. As an officer of the Regular Army before he joined the Royal Flying Corps during the War he will find a particularly hearty welcome from the officers of the Flying Services in the United States.

He deserves the thanks of everybody concerned with the sport of flying for giving up his time to this particular task. One can only hope that he will have the satisfaction of bringing the Schneider Trophy with him when he returns to this country.

Thanks.

One would like at this point once more to tender the thanks of the aeronautical community to the Atlantic Transport Company for their good sportsmanship in transporting the British machines and crews to the States. As one said in a previous issue of The Aeroplane the amount of cargo space and passenger accommodation thus presented to the Royal Aero Club and the British Aircraft Industry by the proprietors of the *Minnewaska*, represents a sum of money which must amount to pretty well as much as the total of the Racing Fund which the Royal Aero Club has been able to raise from all its wealthy patrons put together.

(The vowels in the name of the ship must on no account be transposed in conversation in the States. It would never do for the British team to arrive in the *Manywhiskey*.)

One believes that after the Atlantic Transport Company had made their offer certain others of the trans-Atlantic shipping firms made a similar offer, doubtless in view of the publicity which would be obtained. However the Club, doing the obviously right thing for once, accepted the Atlantic Company's offer, which certainly deserves all the publicity it can possibly get.

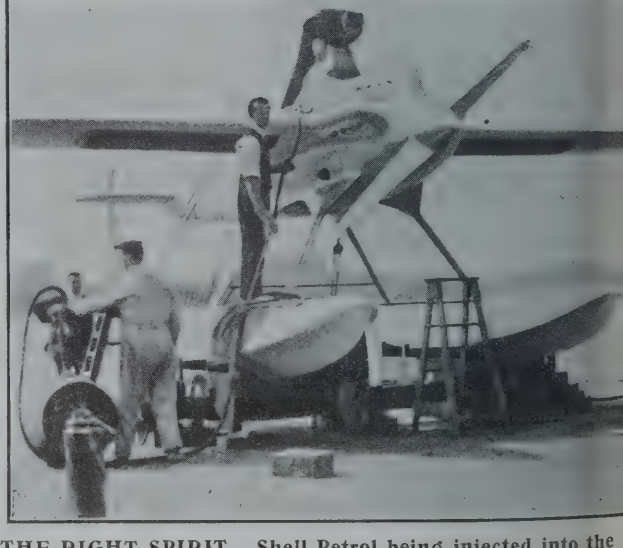
And so one closes these notes with heartiest good wishes on behalf of the whole British aeronautical community to everybody who has had a hand in this effort to bring back the Schneider Trophy to this country. We can at least pride ourselves on sending a fully-equipped team across the Atlantic complete with aircraft and engines which are actually completely finished jobs, and have been flown.—C. G. G.

THE SUPERMARINE AT SOUTHAMPTON.

On Sept. 17 a party of privileged press-men were permitted to visit the Supermarine Company's Works at Southampton to see the Supermarine Napier S.4, which is one of the two British challengers for the Schneider Trophy.

Of course all the longshoremen at Woolston had been able to watch the machine every time it came out to have its engine run and had seen it whenever it was afloat. And everybody down Southampton Water had seen it whenever it was flown. One imagines that all the enterprising air attachés must have had representatives with cameras of some sort in the vicinity of Woolston and that photographs of it must already be in the hands of our esteemed competitors. Still everything to do with the machine being under the Air Ministry it was naturally on the official "Secret List" and was treated as a most hush-hush affair.

So secret was the whole business that some humourist suggested that the press-men who were invited by the Supermarine Company and the Napier Company on Wednesday should parade at Waterloo either with cloaks, masks and sombreros or else in the complete uniform of the Klu Klux Klan. And somebody else suggested that in writing of the



THE RIGHT SPIRIT.—Shell Petrol being injected into the Supermarine Napier S.4.



THE D.H. TYPE 54 "HIGHCLERE"

650 H.P. ROLLS-ROYCE CONDOR ENGINE.

"The D.H. 54 carries fourteen passengers, has a top speed of 120 m.p.h. and lands at less than 50 m.p.h. She is undoubtedly the best Commercial Aeroplane in the World."
The Aeroplane, August 12th, 1925.

The above photograph shows the "HIGHCLERE" taking off from Stag Lane Aerodrome.

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THE D.H. TYPE 60 "MOTH"

27-60 H.P. CIRRUS ENGINE.

The de Havilland "MOTH" which has been described by FLIGHT as "the most practical light aeroplane yet produced" has been selected as their standard equipment by all the Light Aeroplane Clubs in Great Britain.
The photograph below shows the first batch of "MOTHS" ready for delivery.



trip it should be entitled "A Visit to Shush-ampton." However—.

The visitors were escorted from Waterloo to Southampton by Captain Mossley and Mr. Victor Scott Paine of the Supermarine Company and Mr. H. T. Vane and Mr. F. Hazell Jones of the Napier Company and were received on their arrival by Squadron Commander James Bird, late R.N., Managing Director of the Supermarine Company, and Mr. R. J. Mitchell, the designer, and Mr. H. C. Biard, the pilot.

The First Impression.

One's impression on seeing the machine for the first time was that here at last Great Britain had produced a speed machine the designer of which, if not actually striking out on an absolutely new line of development, had at any rate tackled the problem of reducing head resistance in a way which nobody in this country has hitherto attempted. The accompanying photographs show how this object has been achieved.

There is not a single external wire in the whole machine and everything has been shaved down to the uttermost limit. Whether Mr. Mitchell put his wings where they are because it is the one place for them aerodynamically or whether he put them there so as to make the cowling of the side cylinder-blocks of the Napier Lion melt away into the wing form one omitted to inquire. But the way in which the cylinder cowling blends into the wings indicates how the whole problem of streamlining has been tackled.

A Few Details.

The Supermarine Company deserve every congratulation on the way in which they have gone about building the machine. Instructions to go ahead with the construction were given by the Air Ministry on March 18 of this year and the first test flight was made on August 25. Certainly it was a great achievement to turn out a machine of an entirely new design embodying a number of novel features and get it into the air in five months.

One is told that the cantilever wing structure incorporates new methods of construction which show great promise for future designs and that it is only thanks to these new methods that the present design was possible. Naturally no information is given as to these new methods so one looks forward with interest to their being disclosed at some future date. One may however say that the wing itself is built all in one piece and that a trial wing was constructed and tested to destruction at the Royal Aircraft Establishment at Farnborough with satisfying results.

Furthermore one can say that there is no fabric used in the construction of the machine the outside surfaces being entirely either metal or plywood. Thus at any rate there is no danger of fabric stripping as has occurred in a number of high speed machines. At the same time it is only fair to those who believe in fabric to admit that given sufficient air pressure in the right place, either aluminium or plywood will burst. But one imagines that Mr. Mitchell can be trusted to see that everything that is humanly possible has been done to prevent such an occurrence.

The wing section is credited to the Royal Aircraft Establishment at Farnborough. It is a symmetrical section,—that is to say the upper and lower surfaces conform to the same curve.

The idea of a symmetrical wing for high-speed machines is by no means new. One remembers it being advocated for high speed scouts during the War by Captain H. V. Martin, that perennial thorn in the side of American official personages, though whether he actually invented the idea or not one would hate to say.

Presumably this R.A.E. wing curve is novel in the actual line of its curvature and not in being symmetrical. Anyhow, it makes a very nice looking wing and Mr. Mitchell seems highly pleased with it, so one is quite willing to have confidence in it.

The wings have flaps to reduce the landing speed, with ailerons acting both independently from and in conjunction with the flaps.

The tail unit, including both the fin and the tail plane, are built in one piece with the fuselage thus avoiding even the smallest excrescence which would be caused by even the most ingenious form of attachment. All the controls for ailerons, flaps, rudder and elevator are operated inside the structure thus reducing head resistance still further.

A Daring Undercarriage.

The undercarriage is rather a daring departure from standard practice for such a high speed machine. There is no wire bracing of any kind and the machine stands simply on four steel tube struts which are duly streamlined by aluminium casing. A similar idea was used successfully by Mr. Harold Bolas in the Parnall Pixie light aeroplane two years ago. But this high-speed job is a slightly different proposition.

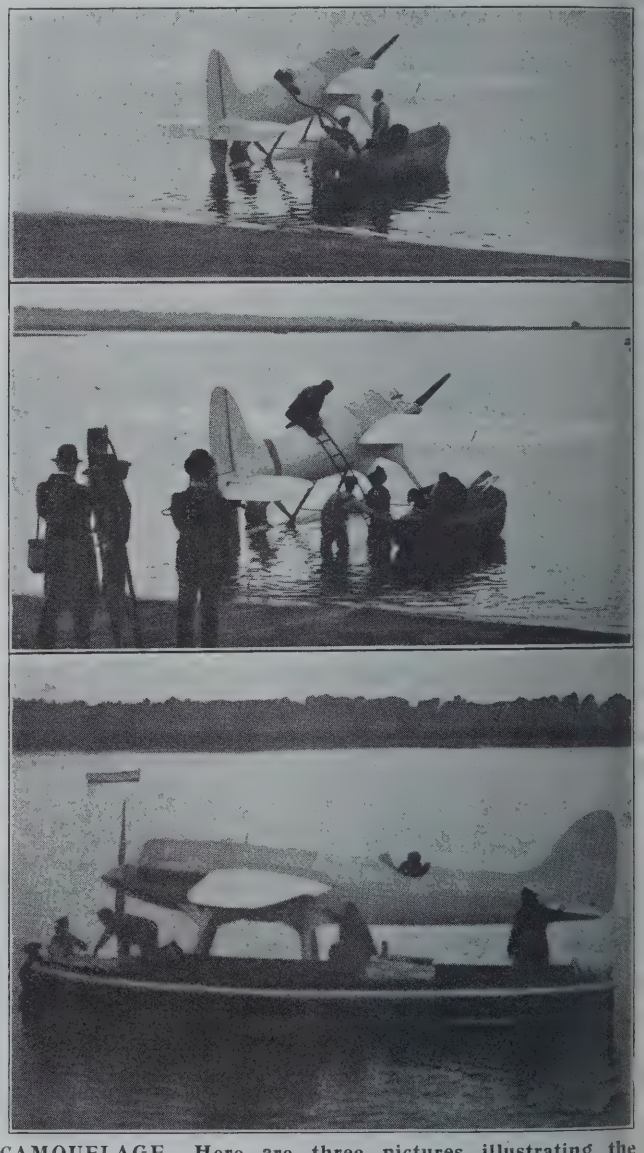
The floats are braced horizontally by two other steel tubes and that is the whole connection between the flying part of the machines and the floating part. Mr. Mitchell relies for all fore and aft and thwart-ships strains simply on the strength of the steel tubing and he also relies on the natural spring of the tubing to give a certain amount of flexibility as between the flying and floating parts.

Having been oneself more or less brought up on steel tubing one believes in the soundness of Mr. Mitchell's design. But is must be rather horrifying to the ordinary engineer who cannot believe in anything that does not conform directly to some type of braced girder.

Certainly when the engine was run up at something like top speed, with the floats lashed down to a landing carriage, the four struts wobbled in rather a terrifying way. But one knows that the machine has actually been put onto the water at a speed of something like 120 miles an hour and therefore one has confidence in the adequacy of its undercarriage. The floats are built of wood and are of the concave Vee-bottom type with a turtle deck. The finish is fully up to the highest possible British standard.

The Power Plant.

The engine is a direct-drive Napier, the horse power of which as stated hereinbefore is an unknown quantity or at any rate is being kept religiously secret. The airscrew is a Reed-duralumin, the patents of which are owned in this country by the Fairey Aviation Company Ltd. The radiators



CAMOUFLAGE.—Here are three pictures illustrating the secrecy so religiously preserved around the Supermarine-Napier S.4. (A) To prevent enemy photographers from showing that there is a pilot, he is pumped into the cock-pit through a hose-pipe. And (B) someone kneels on him, to pretend he is not there. And then (C) a motor launch is placed in front of the machine to pretend that she has no floats.—As a matter of fact the hose-pipe in (A) belongs to the Bristol starting-engine which is in the boat. And (B) the pilot climbs up a ladder into the cock-pit. The lowest photograph (C) gives a good idea of the clean side-view of the machine.

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HOLDERS OF THE BRITISH SPEED RECORD, 212.2 M.P.H.
RECORD CLIMB OF 19,500 FT. IN 11 MINS. 34 SECS.

(Machine in each of above events fitted with Napier Lion engine.)

are special Lamblins fitted underneath the wing where they would certainly appear to cause less head resistance than they could anywhere else. Right underneath the fuselage is a special oil cooler of novel design.

Incidentally it is claimed that the direct-drive Napier boosted as are the Schneider engines gives greater power for weight than any other engine.

Naturally the starting of a big super-compressed engine of this kind is a troublesome job and so it is done by a Bristol Gas Starter,—one of those ingenious little engines which have been developed by the Bristol people from the idea originated by the late Major Norman, R.F.C., when he was at the Royal Aircraft Establishment.

In The Works.

After the inspection of the machine the visitors had a look round the Supermarine Works, which are busy building the big Southampton twin-Napier flying boats,—the greatest contrast possible to the little S.4 monoplane. One stated some time ago in this paper that the Supermarine Southampton is about the most efficient twin-engined aeroplane of any kind, in that it not only flies with one engine dead but can actually climb with one engine and turn against the pull of the live engine.

Judging by what one hears from the R.A.F. it is certainly at the moment the best flying-boat in the World. But Mr. Mitchell, who is undoubtedly one of our most progressive designers, wants to redesign the whole thing and make it still more efficient. This is a very hopeful sign, because flying boast have been greviously neglected ever since the Armistice in 1918 and are certainly vehicles with great possibilities.

Incidentally one was particularly struck by the fine spirit which prevails in the Supermarine Works. The workmen in all departments seem to work with a good will which is wholly admirable. And the workmanship in the firm's products shows that it is done by men who take a pride in their job and are not merely content to work for the wages they get.

Certainly all hands at the Works take an immense pride in the Schneider Racer. And the finish on the machine shows that it was a labour of love on the part of the men who built it.

Social Amenities.

After the inspection of the Works the visitors were entertained to lunch by the Supermarine Company and the Napier Company.

In the course of a few remarks after lunch Squadron Commander Bird expressed his thanks to the Air Ministry for the sporting way in which they had handled the production of the Schneider racing machine. He also gave special thanks to the Officer Commanding and all officers and other ranks at the R.A.F. Station at Calshot for the great assistance which had been given during the trials of the racer.

Owing to the high speed of the machine and the congested condition of Southampton Water it had been necessary to carry out all trials with the Calshot Air Station as base. And but for the help of the R.A.F. personnel there the trials could never have been made as expeditiously and successfully as they were. Also Squadron Commander Bird read a telegram conveying the good wishes of Sir Samuel Hoare.

The Supermarine Team.

The team which will represent the Supermarine Company in America is very well chosen. Instead of one of the principals of the firm treating himself to a holiday in the States the directors are sending Mr. Mitchell himself to look after the machine. As he knows every screw and nut and bolt in it he is obviously the person to put right in the shortest possible time anything that goes wrong.

One feels sure that despite his natural ability and his knowledge of things aeronautical Mr. Mitchell will certainly learn in the States something new which will be of use to British aviation when he returns. And one bespeaks for him a kindly welcome from all one's personal friends who may meet him in America.

Apart from that one knows that the excellent sportsmen who constitute the American aeronautical community will give the whole team that almost embarrassing welcome which Americans are accustomed to give to visitors from this side of the Atlantic.

With Mr. Biard and Mr. Mitchell there will go Mr. A. Powell, in charge of the erection of the machine, Mr. H. B. Pickett, in charge of the engine, Mr. G. H. Broom as rigger (though what there is to rig in a machine which has no wires one does not quite understand, and the lines of the machines are so clean that there seems little need even for the newest of brooms) and Mr. H. M. Grimes as launchman.

The Napier team who will accompany the Supermarine and the Gloster will consist of Mr. F. Hazell Jones, who is officially in charge of Napier publicity, Mr. Lind-Jackson, who will be responsible for the running of the engines, and Mr. Coe as chief engine mechanic.—C. G. G.

THE GLOSTERS AT FELIXSTOWE.

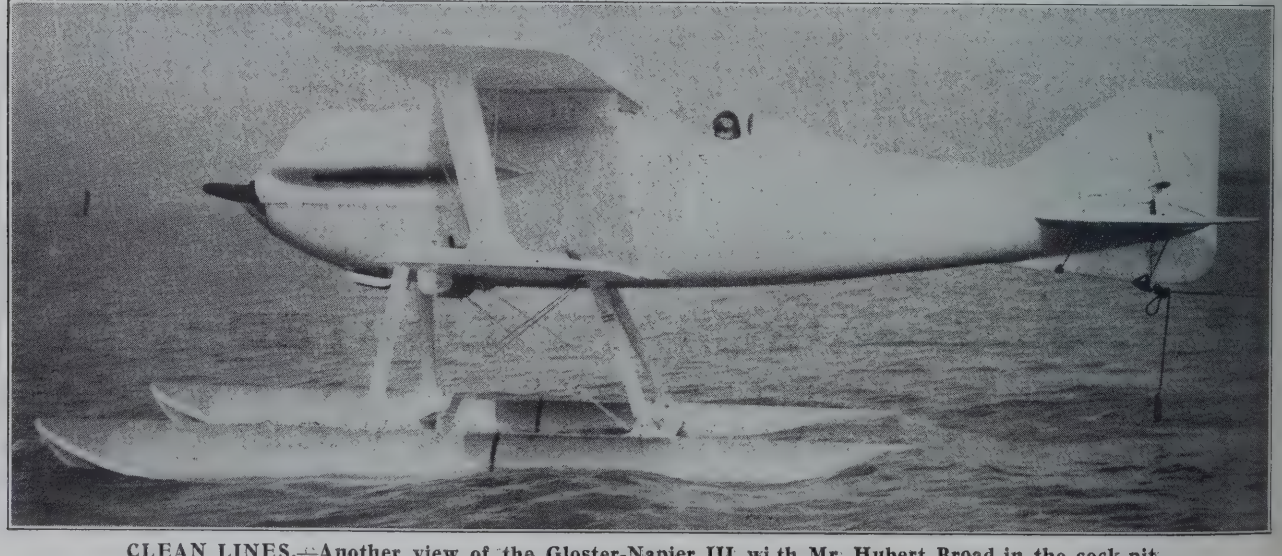
On Friday the veil of secrecy was entirely rent asunder and one was able to see the remainder of the British team, the machines which the Gloucestershire Aircraft Company Ltd. have built for the Schneider Competition. So overcome was the Editor by being allowed into the secret the previous day at Southampton that he was prostrated and unable to come to Felixstowe. Hence it is left to oneself to deal with the visit.

The party foregathered at Liverpool Street Station, generally called by 'bus-conductors "Loop 'ole Street," and therefore suggestive of a peep into the secrecy of the Schneider Trophy arrangements. Led by Mr. David Longden, Mr. Vane, Mr. Burroughs, Capt. Charley and Mr. Jones, together with the captain of the British team, Capt. C. B. Wilson, we left at 9.50 a.m. and arrived at Ipswich at about 11.00 a.m. and thence, as they used to say at Hendon, by motor-'bus to Felixstowe. The road to Felixstowe passes within three miles of Martlesham Heath and so Mr. C. P. Robertson of the Air Ministry naturally gave the order "Eyes right," which was, of course, obeyed by all, thus preserving the secrets of Martlesham.

On arrival at Felixstowe we were ushered into the very secret precincts of the Seaplane Experimental Station and after finding that we were all quite respectable and not likely to steal submarine aircraft or anything else, we were allowed in. In the sheds were Mr. Folland and Mr. Hinkler—Mr. Broad was away in London coping with the American Consulate and getting his passport *visé*, etc.

The Racers.

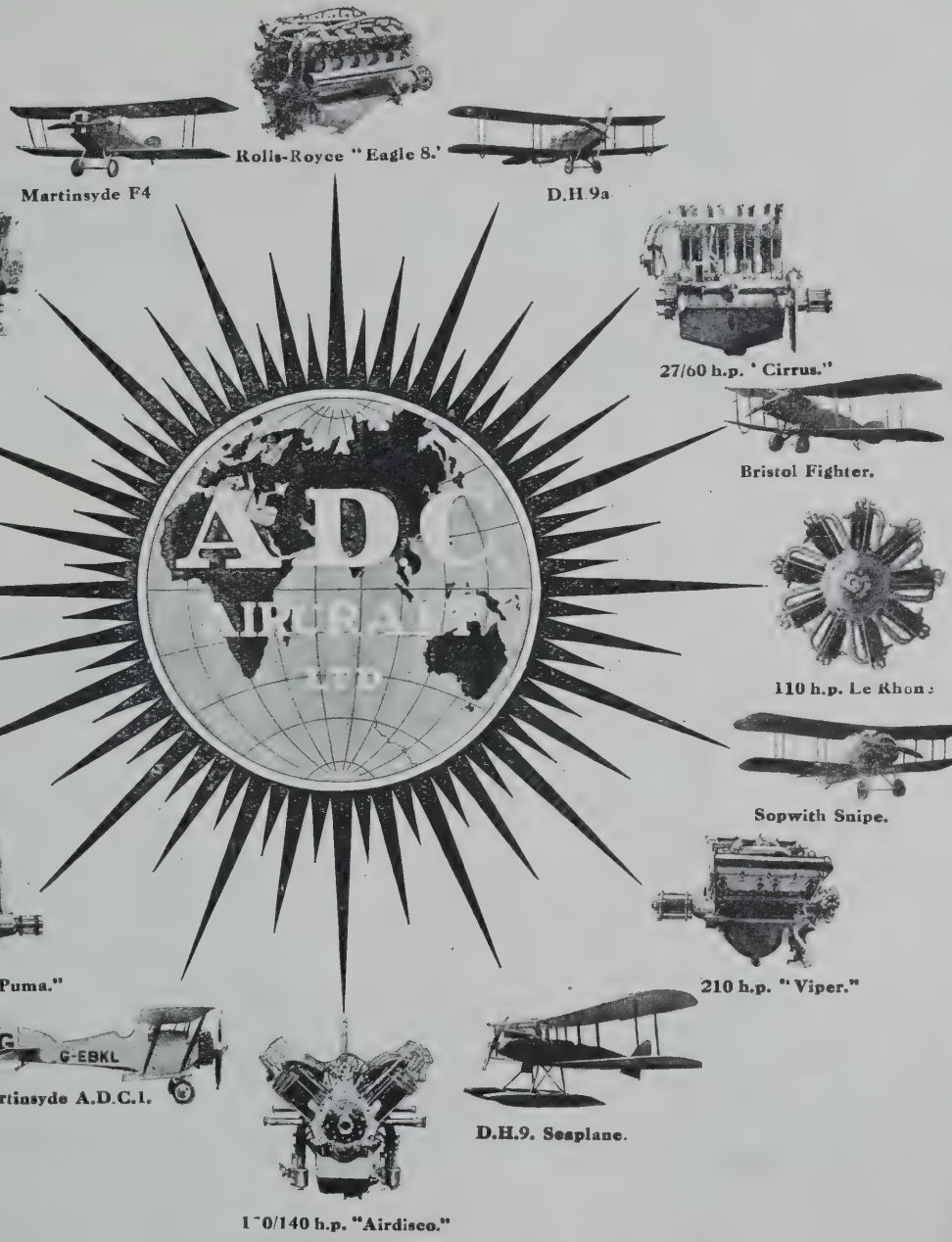
The second Gloster-Napier III which as in the case of all Gloster products has been designed by Mr. H. P. Folland was fully erected in the shed and No. 1 was already being



CLEAN LINES.—Another view of the Gloster-Napier III with Mr. Hubert Broad in the cock-pit.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

dismantled for packing, having completely passed its tests. One gathered that it was hoped that the second machine was to have one more test flight before being packed, which it did at about 3.30 p.m.

The machine is a very small biplane, not unlike the old Bamel except that she is very much smaller. The floats are of metal and were built specially by Short Bros. and have turned out to be very satisfactory. These floats are exceedingly strong, and on actual test the Bamel has been shown to be 3 m.p.h. faster with metal floats than with wooden ones. Moreover they are immensely strong, which may mean much in the actual race. On one occasion one float was bent by striking a floating object, but in spite of this the machine was able to carry on, and the bent float showed no signs of leakage. Under similar conditions a wooden float might have been stove in. The engine cowling is extremely neat though of course, being a biplane, it is not possible to streamline the two outer blocks into the wings as was done on the Supermarine machine. Nevertheless, this is an extremely neat job.

The fuselage aft of the engine Mr. Folland has made just wide enough to contain people of the Broad and Hinkler type and design. Viewed from the back one can see this effect very well, the section of the fuselage being a very long-shaped oval.

The only blemish in the machine is the fixing of the radiators, which are placed on the leading edge of the wing. This takes off several miles an hour of speed but unfortunately it was unavoidable. The Gloucestershire Company had been experimenting with a type of wind radiator but they only suceeded in getting this right about a fortnight ago. So very rightly Mr. Folland decided that there was not time to muddle about with wing radiators and that they had much better do with the Lamblins which they had got. At any rate they knew these were good and reliable. Owing to the fact that Mr. Folland has made the wing section of the Gloster III very thin it was not possible to fit wing radiators such as are fitted to the big thick wing of the Supermarine.

Both the Gloster machines are finished off with the familiar blue and white racing finish of the Gloucestershire Company.

An Old Friend.

Standing next to the Gloster III was what appeared by comparison to be a very large and slow biplane on floats. It was considerably taller, the fuselage was vastly fatter and the wingspread very much bigger than those of the Gloster III.

At first one thought it was merely a school machine but on closer inspection it turned out to be our old friend the Bamel put on floats and now used as a practice machine. Some idea of what the Gloster III is really like can be obtained from this.

Those who have seen the Bamel at races have always thought what a small, neat biplane it was, but by comparison the Gloster III is very much smaller and far neater. It is not expected to be so fast as the Supermarine but it is expected that it may gain on the turns owing to its extreme handleability.

One understands that the course at Baltimore is triangular and its longest leg is 20 miles. Seven laps of this course have to be made and consequently twenty turns. For the Pulitzer Races the Americans have at each corner put two pylons about 300 yards apart in order not to make the turn too sharp and one is told on good authority that this is to be the case at the Schneider Trophy Race this year. If that be so this should make things very much easier for turning, for it is generally agreed that the race will be won by the pilot who can do his turns sharpest and closest.

Internal Bracing.

Pilots are already finding very considerable difficulty internally in taking their turns, but this arrangement, if it is made, should ease things considerably. Capt. C. B. Wilson who is in charge of the team told one that he intended to consult Dr. Whitehead Reid on this very serious question of turning at high speeds.

The effect of turning varies considerably with different pilots. For instance, on Sunday week, Mr. Hinkler took the Bamel up for his first flight on a really fast machine. The authorities marked out for him a short triangular course to try the effect of turns. Now the Bamel at present does something like 200 m.p.h. Mr. Hinkler went round and round this course taking his turns vertically with practically nothing to spare and came down feeling no effects whatever good or bad.

He has not yet flown the actual Gloster III but his performance on the Bamel has shown that he is a very fine racing pilot indeed. Mr. Hubert Broad, our first string, has been hard at it for some time, and he also will be hard to beat.

Unfortunately, by some curious error, evidently the result of the appalling secrecy of the Schneider Committee, who alone seem to be to blame, the Royal Aero Club only entered one Gloster machine instead of two. The result is that we shall send to the States a full team of three machines with the Bamel in reserve although actually we shall only be able to fly the Supermarine and one Gloster.

Fresh Excitements.

But to return to The Day. Shortly after we arrived the Gloster-Napier III was taken out for an engine test. One felt the effect on the ear-drums of the Supermarine out at Southampton on the previous day but the effects of the Gloster-Napier were far worse and very much more ear-splitting, presumably because of the echo from the big all-metal R.A.F. sheds and the concrete ground. The lack of vibration about the machine when the engine was running full out was particularly noticeable.

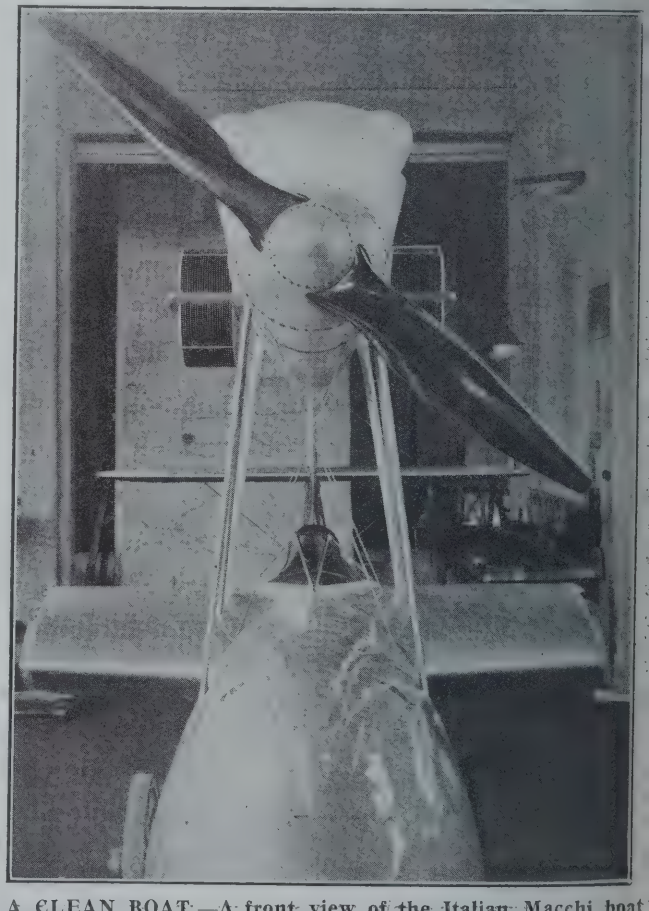
Just as this performance finished a "rohring" and a "bach-ing" was heard and the new Rohrbach machine with two Napier Lions came into view round the corner of the bay. After a couple of circuits it proceeded to alight on the water and taxied about to pick up its moorings.

The machine is very practical, but it is certainly not beautiful. Still it seemed to handle well both in the air and on the water. One gathered that the pilot was Herr Landmann, the famous German, who, in 1914, just missed being the first man to "fly the clock round" by remaining in the air for twenty-four hours. He flew for over 21 hours on an Albatros, only to be beaten a few days afterwards by Rheinhold Böhm on the same Albatros, who did the full 24 hours plus 10 minutes.

After this we returned to the Felix Hotel where the Gloucestershire Aircraft Co. Ltd. and D. Napier and Son Ltd. entertained the party to lunch. Here a telegram was received from the Air Minister as follows: "I regret unable to visit Felixstowe to see your Schneider Cup machine. I wish you however success in the race. Samuel Hoare."

Specially for our benefit they provided in the dining room a good blaze up. One of the food heaters was upset and methylated spirit dashed all over the place on fire. This caused much joy.

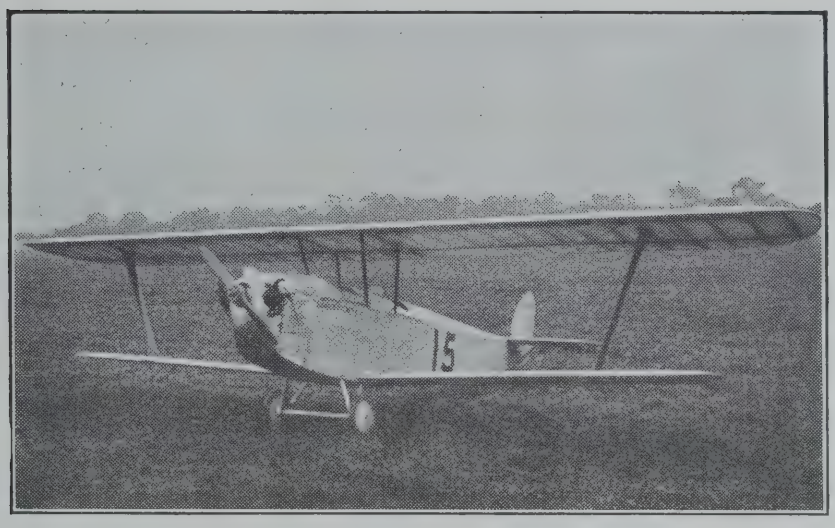
After the Loyal toast, Mr. David Longden, Managing Director of the Gloucestershire Aircraft Company Ltd. pointed out that this occasion was a most important one for this country for our position in regard to World's Records in the air is anything but what we would all desire it to be. He said that our history in relation to the Schneider Trophy at any rate was at least as good as that of any other country as we have won it twice. He said that he thought that it was very much to the credit of the U.S. that in a very sportsman-like way



A CLEAN BOAT.—A front view of the Italian Macchi boat showing the engine mounting and centre section.

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they cancelled the race last year although they could have claimed it.

He spoke of the very generous assistance that his firm had received from all quarters in the building of the Gloster III and especially from the Air Ministry and their Technical Staff and also the officers and men of the Felixstowe Station.

He recalled the fact that the Gloucestershire Company had won the Aerial Derby in three successive years and although his company had a machine ready for last year they were not challenged and again the race was called off this year. Although he did not say so one is under the impression that Mr. Longden might also have added that as no one else bothered about it, the Aerial Derby seemed to become the sole property of the Gloucestershire Company now.

He said that he was very pleased to be associated once more with his friends of long standing, D. Napier and Son Ltd., in welcoming their guests that day to see the machine. The Napier engine, he said, had a World-wide reputation and it redounded greatly to the credit of Great Britain that we had a firm capable of designing and manufacturing an engine of such a standard. He paid a tribute to Mr. H. P. Folland chief designer of the Company and to the pilots, Messieurs Broad and Hinkler on whom so much depends.

Mr. Vane, Managing Director of D. Napier and Son Ltd., spoke of the great interest his Company had always had in racing and demonstrated his keenness on air racing by stating that he was going over to witness the event.

Capt. C. B. Wilson in a short speech said that when it was announced the previous day that he was to be in charge of the team he heard someone say "Who is this fellow Wilson?" He said he did not expect that they had heard of him as his name was Charles and not Alan. He nearly mentioned another name as well but stopped in time.

Mr. Colebrook of *The Times* said that he hoped that in a very short time the Schneider Trophy would be given its true perspective and would ultimately be considered sufficiently important for the aeronautical correspondents of all the papers to attend in whatever country it was held.

Major C. C. Turner of *The Daily Telegraph* said he was impressed by the way in which speeds were going steadily higher. He thought that very soon we would have to look upon races in a different way. He said that the sun went round the World in twenty-four hours. That might be considered bogey for the course and should Mr. Folland produce a machine which would go round that course in twenty two hours he might consider that his handicap was plus two.

After which one returned to London where one was taken in hand by Mr. St. Barbe of the de Havilland Company and we met the sun again in the morning.—G. D.

THE UNITED STATES ENTRY.

For the forthcoming Schneider Trophy Competition to be held at Baltimore on Oct. 24 there will be three American entries. These are two Curtiss R.3.C.1s (619 h.p. Curtiss V.1400 engines) and one Curtiss R.2.C.2 (520 h.p. Curtiss D.12A. engine).

The pilots for the R.3.C.1s will be Lieuts. G. T. Cuddihy and R. A. Ofstie, U.S.N., with Lieut. F. H. Conant, U.S.N. as pilot of the R.2.C.2.

There seems to be a possibility that the R.3.C.1 to be used by the Army Air Service in the Pulitzer Race may be entered by the Army as a seaplane for the Schneider Trophy, but nothing definite concerning this has been announced. Should this Army entry materialise the Navy Curtiss R.2.C.2 will stand down.

The Curtiss R.3.C.1, of which three have been built for joint use of the Army and Navy in the Pulitzer and Schneider Trophy competitions, is a high-speed biplane similar to the R.2.C.1 which won the 1923 Pulitzer Trophy Race at a speed of 243.68 m.p.h., and which later made the World's Speed Record of over 266 m.p.h.

It is fitted with the new V.1400 engine which is similar to the D.12A. except that it weighs 30 lbs. less and gives 100 h.p. more.

The wing area of the machines has been reduced and the nose streamlining modified, and the engine-cooling system has been simplified.

The overall dimensions of the R.3.C.1 as a land machine are :—Span 22 ft., length 20 ft., height 8 ft., weight loaded 2,200 lbs.

As a land machine the first R.3.C.1 has made an average speed over one kilometre of 285 m.p.h., and, fitted with floats, it is estimated that the machine should make a straight-away speed of 260-5 m.p.h.

The R.2.C.2 seaplane last year made an unofficial speed record of 227 m.p.h.—L. B.

THE INTERNATIONAL PULITZER MEETING AT NEW YORK.

The Sixth International Air Race Meeting will be held at Mitchell Field, L.I., N.Y., from Oct. 8-10, 1925. The principal event of this meeting will be the race for the Pulitzer Trophy over a distance of 200 kms (124.27 miles). The entries for this race are :—

A Curtiss R.3.C.1 racer (500 h.p. Curtiss V 1,400 engine) entered by the U.S. Navy and piloted by Lieut. (j.g.) A. L. Williams, of the Naval Air Station, Anacostia, D.C., with Lieut. G. T. Cuddihy, U.S.N., as alternate pilot.

A Curtiss R.3.C.1 racer (500 h.p. Curtiss V 1,400 engine) entered by the U.S. Army Air Service and piloted by Lieut. Cyrus Bettis, A.S., with Lieut. J. H. Doolittle, A.S., as alternate pilot.

A Curtiss P.W.8B (500 h.p. Curtiss D.12 engine) loaned by the Army Air Service for entry by the U.S. Navy; piloted by 1st Lieut. H. J. Norton, U.S.M.C.

Two Curtiss P.W.8Bs (500 h.p. Curtiss D.12 engines) entered by the Army Air Service and piloted by Capt. H. W. Cook and 2nd Lieut. L. H. Dawson.

There is a possibility of a second P.W.8B being loaned by the Army for use by the U.S. Navy, and should this materialise it will be flown by Lieut. G. T. Cuddihy, U.S.N.

Three Curtiss R.3.C.1 racers have been built for the Pulitzer and Schneider Trophy Races this year. They are similar to the R.2.C.1 racers built last year except for a smaller wing area, a modified engine cooling system, and the installation of the new Curtiss V.1400 engine.

This engine is practically the same, in general dimensions, as the D.12 engine, but is some 30 lbs. lighter and gives an extra 100 h.p.

Of the three machines constructed the first will be used for practice purposes by both the Army and the Navy and of the other two machines, one will go to the Army and one to the Navy.

For certain other events at this meeting the Army and the Navy are entering machines and pilots.

For *The Detroit News* Air Transport Trophy for large-capacity aircraft, the Navy are entering four machines :—

A S.C.6 scouting, torpedo and bombing plane, pilot, Lieut. J. D. Barner, U.S.N. A C.S.3 scouting, torpedo and bombing plane, pilot, Lieut. T. N. Thweatt, U.S.N. A D.T.6 bomber, pilot, Lieut. S. P. Ginder, U.S.N. And a D.T.4 bomber or a Martin bomber, pilot, 1st. Lieut. C. F. Schilt, U.S.M.C.

The Army entries for this event are not yet known.

For the Liberty Engine Builders' Trophy it has been decided that in the absence of foreign entries, all machines to be entered will be standard D.H.4bs, of which three will be entered by the Navy. As it is possible that two Breguet XIX A.2 bombers will be sent over by the Breguet Co., the U.S. Army will make available for this race two fast X.O.1 or X.O.2 observation aircraft of the type that is being produced in quantity to replace the D.H.4b and one will be flown by an Army pilot and one by a Navy pilot.

For the John L. Mitchell Trophy, the 1st Pursuit Group U.S. Army Air Service, to which this race is confined, will enter a number of Curtiss P.W.8 standard pursuit ships.

Other events in which the Services will not participate include the "On-to-New-York" event for the New York Chapter of the National Aeronautic Association Trophy and $3,000 in prizes; the Free-for-All, two-seater, low horse-power machine race for a Trophy and $2,000 in prizes; the Free-for-All race for two, three and four-seater aircraft for a Trophy and $2,500 in prizes; the Light Commercial Speed and Efficiency Race for the Aviation Town and Country Club of Detroit Trophy and $2,000 in prizes; the Light Aeroplane Race for *The Dayton Daily News* Trophy and $2,000 in prizes; the Speed and Efficiency Race for Light Aeroplanes for the "Scientific American" Trophy and $2,000 in prizes, and the Duration Race for model aeroplanes for the Mulvihill Trophy and $500 in prizes.

PULTZER TROPHY RACE PREPARATIONS.

On Sept. 18 Lieut. A. Williams, U.S.N., winner of the 1923 Pulitzer Trophy Race, tested the first of the 1925 Curtiss Racers, type R.3.C.1, at Curtiss Field, Long Island, and over the kilometre course made an average speed of 285 m.p.h.

Flying with the wind he reached a speed of 302 m.p.h. and against the wind 268 m.p.h.

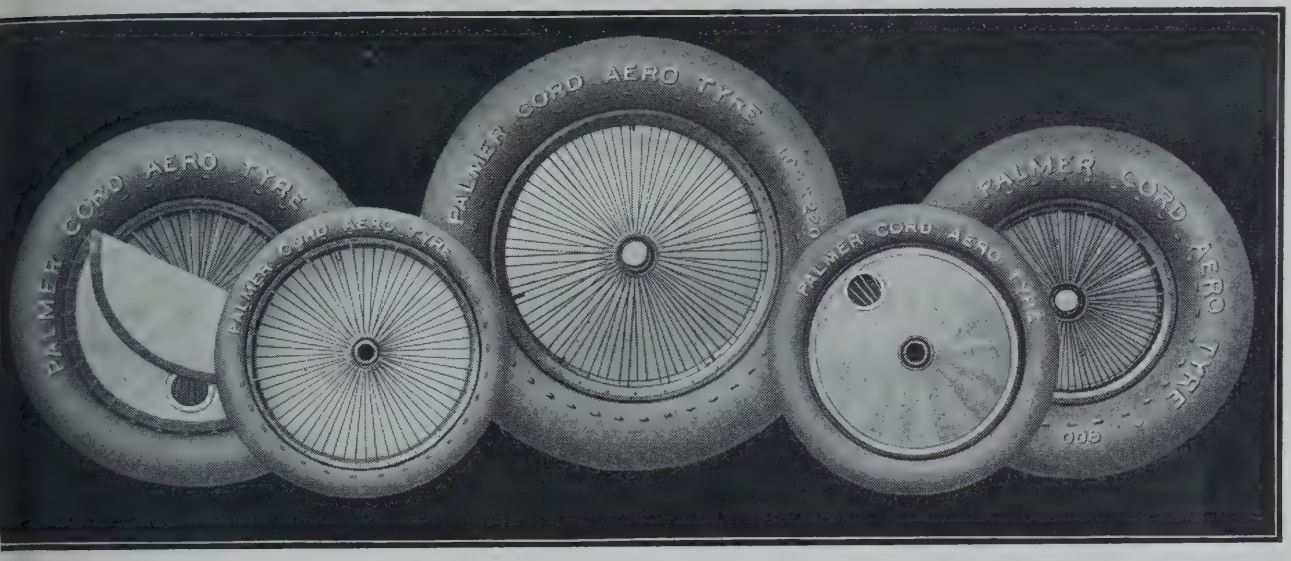
The first Curtiss R.3.C.1 used by Lieut. Williams is being used as a practice machine by both the Army and Navy, each of whom are entering one machine of this type.

As soon as the practice flights are completed this machine will be returned to the Curtiss factory to be fitted with floats for training purposes in connection with the Schneider Cup Race.

Apropos the high speed recorded above, according to *Reuter's* correspondent, the machine was piloted in a downward direction over a distance of a kilometre, which seems to indicate that the bottom fell out of something.

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		m/m	m/m	m/m			m/m	m/m	m/m			m/m	m/m	m/m
375×55	168	111.12	25.4	Central	700×100	99	178.	38.89	132/46	1000×150	201	185.	60.32	125/60
300×60	16	111.12	25.4	Central	,,	112	150.	38.09	Central	,,	210	185.	60.32	Central
,,	17	72.39	12.7	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	,,	147	178.	55.	Central	,,	149	185.	55.	Central
,,	138	130.	38.09	Central	750×125	77	178.	44.45	132/46	,,	155	220.	66.67	Central
575×60	21	160.	28.	Central	,,	92	185.	55.	135/50	,,	166	185.	55.	125/60
,,	34	150.	31.75	104/46	,,	95	185.	55.	Central	900×200	107	185.	55.	Central
,,	111	150.	38.09	104/46	,,	96	178.	55.	132/46	,,	108	185.	55.	125/60
600×75	21	160.	28.	Central	,,	99	178.	38.89	132/46	,,	128	220.	66.67	Central
,,	34	150.	31.75	104/46	,,	112	150.	38.09	Central	,,	137	250.	80.	Central
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50	,,	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	,,	85	185.	55.	Central	1100×220	134	220.	66.67	Central
,,	79	178.	44.45	Central	,,	161*	185.	55.	135/50	,,	136	250.	80.	Central
,,	100	178.	38.09	132/46	,,	163*	185.	66.67	135/50					
,,	101	178.	31.75	132/46	,,	169†	185.	55.	135/50	1250×250	133	250.	80.	Central
800×100	77	178.	44.45	132/46	1000×150	211*	185.	60.32	135/50	,,	154	304.8	101.6	Central
,,	92	185.	55.	135/50	,,	131	220.	66.67	Central	1500×300	115	304.8	101.6	Central
,,	95	185.	55.	Central	,,	150	185.	55.	Central	,,	126	304.8	152.4	Central
,,	96	178.	55.	132/46	,,	167	185.	55.	125/60	1750×300	139	400.	152.4	Central
						174	250.	80.	Central					

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE ROYAL AIR FORCE.

The London Gazette.

Sept. 18.

GENERAL DUTIES BRANCH.—Flt. Lt. N. C. Saward is granted a perm. comn. in the rank stated (Sept. 16); R. A. Seaton is granted a S.S. comn. as a Flg. Off. with effect from, and with seniority of, Sept. 2.

The following Plt. Offs. are promoted to the rank of Flg. Off.:—L. C. Lewis, C. G. M. Anderson (May 15); R. O. Jones (Aug. 3); H. T. R. Cripps (Sec. Lt., Queen's Bays Regt., R.A.R.O.), P. Cranswick, M.C., G. H. Jennings-Bramly, J. F. Nicholas, P. P. Grey, F. F. Wilkinson (Aug. 14); G. R. A. Pallin (Aug. 31); W. J. Brett (Lt., 51st (West. and Cumb.) Field Bde., T.A., Lt., R. of O.) (Sept. 3); T. H. Finney, R. K Coupland (Sept. 14).

The following are placed on the retired list at their own request:—Sq. Ldr. B. H. N. H. Hamilton, D.S.O. (Aug. 5); Flg. Off. W. J. Bray (Sept. 16).

The following Flg. Offs. are transferred to the Reserve, Class A:—W. R. K. Atkinson (Aug. 28); C. H. Bird (Sept. 15).

Flg. Off. J. A. Stedman relinquishes his S.S. comn. on account of ill-health, and is permitted to retain his rank (Aug. 18); Flg. Off. J. U. McKinnon resigns his S.S. comn. and is permitted to retain his rank (Sept. 1); Flg. Off. J. K Smith (Lt., Lancs Fus.) relinquishes his temp. comn. on return to Army duty (Sept. 13).

MEDICAL BRANCH.—F. B. C. L. B. Crawford, M.B., is granted a S.S. comn. as a Flg. Off. for three years on the active list, with effect from, and with seniority of, Aug. 25; Flt. Lt. F. E. Johnson is promoted to the rank of Sq. Ldr. (Sept. 14); Flg. Off. L. P. McCullagh, M.B., is promoted to the rank of Flt. Lt. (Sept. 7); Flt Lt. J. S. Wilson, M.D., B.A., is transferred to the Reserve, Class D.2 (Sept. 12).

RESERVE OF AIR FORCE OFFICERS.—E. Busby is granted a comn. in Class AA, General Duties Branch, as a Plt. Off. on probation (Sept. 1). The following Plt. Offs. are promoted to the rank of Flg. Off.:—F. H. Pidgeon (June 10); C. S. Clarke (June 23); R. P. Whyte (July 6); W. Lowry (July 10); E. F. D. Gregory (July 11); E. T. Shone (July 13); A. B. H. Youell (July 20); W. R. Bailey (July 22); G. J. Holdcroft (July 27); A. D. M. Blair (Aug. 1); E. H. Rossington (Aug. 5); A. L. Robinson (Aug. 5); L. C. Hillman (Aug. 10); S. J. Wheeler (Aug. 19); E. H. Bird (Aug. 26); W. Rogers (Aug. 26); R. J. Bunning (Sept. 2); F. Dismore (Sept. 4); J. Hall (Sept. 4); A. J. C. Overal (Sept. 4); F. G. Sinclair (Sept. 7).

Flg. Off. H. V. Stammers, D.F.C., is confirmed in rank (Sept. 10); Sq. Ldr. C. E. C. Rabagliati, M.C., A.F.C., is transferred from Class A to Class C (Sept. 15); Flg. Off. R. A. Seaton resigns his comn. (Sept. 2).

Appointments.

Week ending Sept. 21.

GENERAL DUTIES BRANCH.—Wing Commanders R. E. C. Peirse, D.S.O., A.F.C., to Air Ministry, for Air Staff duties, 15/9. H. R. Nicholl, O.B.E., to R.A.F. Depot, attending Staff Course at Royal Naval College, Greenwich, 15/9.

Squadron Leaders H. Gordon-Dean, A.F.C., to No. 24 Sqdn., Kenley, 1/10. C. G. Burge, O.B.E., to R.A.F. Depot, 15/9.

Flight Lieutenants L. J. St. G. Bayly, M.C., to No. 99 Sqdn., Bircham Newton, 1/10. A. S. Cheshire, M.B.E., to Electrical and Wireless School, Flower Down, 28/9. D. R. W. Thompson, to No. 3 Group H.Q., Spittlegate, 1/10. The Hon. J. H. B. Rodney, M.C., to No. 24 Sqdn., Kenley, 10/10. W. N. Cumming, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 20/8. P. J. Clayson, M.C., D.F.C., to No. 23 Sqdn., Henlow, 9/7.

Flying Officers H. J. Saker, to No. 58 Sqdn., Worthy Down, 1/10. J. R. D. Goadsby, to M.A.E.E., Felixstowe, 5/10. R. G. Chapell, to No. 100 Sqdn., Spittlegate, 24/9. R. A. Seaton, to No. 24 Sqdn., Kenley, on appointment to a S.S. Comn., 2/9. H. N. Hawker and C. R. Mason, to No. 24 Sqdn., Kenley, on appointment to a S.S. Comn., 14/9. F. W. W. Wilson, to R.A.F. Base, Gosport, 14/9. W. D. Gairdner, D.F.C., to 461 Flight, Gosport, 14/9. J. Turner, to No. 1 School of T.T. (Boys), Halton, 10/9. B. I. Carter, to No. 1 School of T.T. (Boys), Halton, 25/9. V. H. Clift, to No. 481 Flight, Malta, 1/9. A. Leslie-Moore, to No. 462 Flight, Gosport, 14/9. T. J. Woods, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 28/8. R. S. Greenslade, to R.A.F. (Cadet) College, Cranwell, 21/9. J. S. Nichol, to No. 12 Sqdn., Andover, instead of to No. 11 Sqdn., Netheravon, as previously notified, 27/9. A. Maughan, to the Packing Depot, Ascot, 1/10. P. J. Chambers, to R.A.F. (Cadet) College, Cranwell, 1/10. E. C. Barlow, to R.A.F. (Cadet) College, Cranwell, 1/10. J. C. Hawtry, to R.A.F. (Cadet) College, Cranwell, 21/9. B. J. Finn, to No. 23 Sqdn., Henlow, 1/7. C. F. Roupell, to R.A.F. (Cadet) College, Cranwell, 1/10. P. Hill, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 31/8.

Pilot Officers J. R. Addams, to No. 43 Sqdn., Henlow, 3/7. E. H. Fielden, to No. 23 Sqdn., Henlow, 9/7.

MEDICAL BRANCH.—Flight Lieutenant W. G. Weston, M.B., to R.A.F. Depot, 31/8.

Flying Officers W. J. Hutchinson, M.B., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 22/8. J. McM. Wilder, to R.A.F. Depot, Uxbridge, 15/9. F. B. C. L. B. Crawford, M.B., to M.A.E.E., Felixstowe, 15/9. H. G. Maguire, to R.A.F. Depot, Uxbridge, 15/9.

STORES BRANCH.—Flight Lieutenants L. A. Lavender, to A. and G. School, Eastchurch, 21/9. W. G. MacD. Nicholl, to I.A.A.D., Henlow, 5/10. A. J. Roberts, to Aircraft Depot, Iraq, 1/9.

Flying Officers W. A. Kyte, to C.F.S., Upavon, 24/9. R. V. Robinson, O.B.E., to Supply Depot, Iraq, 25/8. E. A. Slater, to School of Balloon Training, Larkhill, 1/10. C. W. H. Moller, to No. 11 Sqdn., Netheravon, 18/9.

Honours for the Air Council.

An addition to the King's Regulations provides that the Air Council, when travelling in a corporate capacity, and the Secretary of State for Air, when visiting a station officially, shall receive the same salutes as the Army Council and Secretary of State for War respectively.

Fatal Accidents.

The Air Ministry regrets to announce that as a result of an accident at Sealand, Chester, to a Bristol Fighter of No. 5 F.T.S., Sealand, on Sept. 14, Plt. Off. William Langdon Sp way, the pilot and sole occupant of the aircraft, was severe injured, and died later in the day.

The Air Ministry regrets to announce that, as a result of accident near Digby to a Bristol Fighter of No. 2 F.T.S Digby, on Sept. 16, Plt. Off. Frederick Martin Kellaway, t pilot of the aircraft, was killed, and Flg. Off. William C Williams was severely injured, and died shortly afterwards.

Officers' Courses.

CAMBRIDGE UNIVERSITY COURSE EXAMINATION RESUL JUNE, 1925.

1. The following officers, who were selected for t University Course in October, 1923, have successfully pass the course and have qualified for the B.A. degree:—

Mechanical Sciences Tripos:

Flt. Lt. C. E. W. Lockyer—Class II; Sq. Ldr. E. L. Howard-Willian M.C.—Class III; Flg. Off. H. A. Haines, D.F.C.—ordinary degree.

Engineering II (Course for Ordinary Degree):

Flt. Lt. C. H. Awcock, O.B.E.

2. Flt. Lt. C. E. W. Lockyer has been awarded the John Berna Secley Prize for Aeronautics for the year 1925.

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY—COUR "C" AWARDS JULY, 1925.

Each of the following officers who were selected for t above-named course in October, 1924, has presented to t Board of Studies of the Imperial College a thesis which h been accepted for the award of the Diploma of the Imperi College for advanced Study and Research:—

Sq. Ldr. H. Gordon-Dean, A.F.C., Flg. Off. H. E. Falkner.

Association Football.

On Monday, Sept. 14, the Royal Air Force XI played their fi match of the season against Rotherham United at Rotherham, t result being a draw, the R.A.F. scoring 2 goals (Flt. Sjt. Fretwell fr penalty and Flg. Off. Williams) Rotherham United 2 goals.

Considering it was the first time the team had played together, th showed every prospect of developing into a very good side.

Flt. Sjt. Fretwell played very well at back, but a little more trai ing would help his pace. Owens, the other back, promises to devel into a good partner for Fretwell, being a hard worker with plenty pluck. Flg. Off. Dickson at centre-half made two or three remar able saves in front of goal with his head and generally played c ceedingly good football—more training for stamina will make him very great asset during the season.

Of the forwards, Bishop stood out as the best, using his brains f making openings for his wing man and nearly always passing t ball to the right man at the right time. He worked very hard a has adapted himself to the new off-side rule by dropping back a helping the defence. Morris, the outside left, also played well, b he must learn to centre better. The second goal was chiefly enginee by him.

The remainder of the team worked hard, but the opposition bei professionals were better able to stand the pace. The result sho great credit to the side as a whole.

The R.A.F. team maintained the Amateur status of Associati Football in the highest degree. No appeal or demonstration of a kind was made during the whole course of the game, an importa point some amateur sides are in the habit of overlooking.

The R.A.F. team was as follows:—

L-AC. Locke (No. 2 Sqdn.) (goal); AC. Owens (Calshot) and Flt. S Fretwell (Hawkinge) (backs); AC. Wilson (Cranwell), Flg. O Dickson (Cranwell), and Cpl. Aitken (Cranwell) (halves); Sjt. Fran (Cranwell), AC. Bishop (Henlow), Flg. Off. Williams (Cranwe (captain), AC. Vernon (Gosport), and AC. Morris (Halton) (forward

The next match is against Middlesex County at R.A.F. Stadiu Uxbridge, on Sept. 30. Kick-off 3 p.m.

A match against Oxford University has been arranged and will played at Oxford on Nov. 21.

Golf at the C.F.S.

The first annual competition for the C.F.S. Golf Challenge Cup to place at Upavon on Sept. 12 and 13. The competition was open teams of two from any R.A.F. station and the play was two two-b and two four-ball foursomes under handicap.

The Cup was won by the C.F.S. team, which was represented Flt. Lt. H. H. Down and Flg. Off. J. Silvester, their net score f the six rounds being 435.

The Digby team, represented by Plt. Off. A. J. Holmes and Plt. O J. W. Stokes, came second with a net score of 442.

Rhymes of the R.A.F.

Rhymes of the R.A.F., by C. L. M. Brown. (Methuen and Co., Lt 36, Essex Street, W.C. 40 pp. 2s. net.)

These verses which are now published in book form appeared the *Cranwell Cadet College Magazine* and *Punch*. They are the wo of an Education Officer attached to the Boys' Wing, Cranwell, and a extremely amusing.

Mr. Brown discusses in verse Air Force types from the A.O.C. the Aircraft Apprentice. He does it without malice and he is n monotonous—a rare accomplishment.

Those who want to know who is indicated by the following lin should buy the book and find out.

"At big inspections on the Square
He shows delightful *savoir faire*,
No Air Vice-Marshal, fiercely grim,
Can hope to put the wind up him;
Respectful, but serenely bland,
He keeps the fellow well in hand,
Just shows him what he's meant to see
Then steers him safely off to tea."


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THE AMERICAN AIR AGITATION.

An *Exchange* message from Washington published in *The Morning Post* on Sept. 22, states :—

It is announced that Colonel Mitchell, who recently made criticisms in respect to the *Shenandoah* disaster and the American Air Service, has been relieved from active duty as an Air officer in the Eighth Army Corps. Whether the action is merely to permit Colonel Mitchell to attend the Air Inquiry or is more significant has not yet been stated.

A *Central News* message from New York, dated Sept. 21, is as follows :—

A message from San Antonio, Texas, states that Colonel William Mitchell has been relieved of active duty.

Following his removal from the post of Chief of the United States Army Air Service in consequence of his outspoken criticism of the administration of the army and navy air services, Colonel Mitchell was placed in command of the Air Section of the Eighth Corps, with headquarters at San Antonio. From this distant post he launched further sensational charges following the loss of the *Shenandoah*, and rendered himself liable to court-martial proceedings for insubordination. He has now been suspended from duty pending the report of the board investigating his allegations.

Colonel Mitchell had favoured the unification of the United States air services, and Mr. Dwight Davis, giving evidence before the board to-day, declared that the War Department was opposed to air unification.

A NEW UNIFORM FOR THE U.S. ARMY AIR SERVICE.

The Secretary for War of the United States Government has definitely approved of the design for a new uniform for officers of the U.S. Army Air Service.

The following is a general description of the altered articles of uniform as adopted :—

The officer's coat will be a single-breasted four-button coat made of the same material as the present one with a roll collar and notched lapel. It will have four pockets with flap on each. It will be cut to extend two or three inches below the crotch and to fit the figure easily over the chest and snug at the waist. It will have a belt two inches wide sewed down, all round the waist. All insignia will be embroidered in gold and silver bullion.

The overcoat will be a double-breasted four-button overcoat with roll collar and notched lapels. Three buttons will show below the end of lapel roll. The coat will reach one inch below the knee. The insignia of rank will be on shoulder loops.

The cap will be similar in type to the overseas cap and will have a piping of ultra-marine blue with golden orange threads.

The boots will be similar to the present field boots, but need not necessarily be weatherproof, nor with bellows tongue.

The olive drab shirt will be of the existing type, except that shoulder loops need not be worn when the coat is worn.

Stockings will be "golf commercial," plain tops and made of olive drab wool.

It is expected that formal orders announcing these changes in uniform will be issued to the service within a short time.

[Apparently nothing is specified between the end of the tunic and the beginning of the commercial stockings. Hence the overcoat. "Stands Scotland where it did?"—Ed.]

AMERICAN AVIATORS IN MOROCCO.

The Washington State Department has instructed the U.S. Diplomatic Agent in Tangier to inform the American aviators serving with the Sultan of Morocco in the French cause against Abd-el-Krim, that they are violating U.S. laws.

THE F.A.I. CONFERENCE AT PRAGUE.

The Congress of the Fédération Aéronautique Internationale opened at Prague on Sept. 21, in the presence of the Crown Prince of Roumania, members of the Czecho-Slovak Government, representatives of the Czecho-Slovak Aero Club and of the military and civil aviation authorities.

MORE INTERNATIONAL COMPLICATIONS.

According to *The Times* M. Coste, who, with M. Thierry, crashed in the Black Forest while attempting to fly non-stop from Paris to the Persian Gulf, is being detained by the German authorities at Freiburg.

It will be remembered that owing to thick fog the Breguet XIX on which they were flying crashed near Freiburg, M. Thierry being killed and M. Coste slightly injured.

It is believed that M. Coste will be allowed to return to France on payment of a deposit which will be returned to him after an inquiry, now being held by the German authorities, has been completed.

Of course the Germans are perfectly right from the legal point of view in detaining M. Coste. But one cannot help thinking that they have committed an error of judgment. To have sent him straight home would have been more generous and more dignified.

SPANISH AIR OPERATIONS IN MOROCCO.

From Sept. 5-15 the Spanish Air Service operating from Melilla dropped 3,133 bombs, mostly on Rifi artillery, during the landing operations at Alhucemas Bay. Four aeroplanes were shot down, two falling in the sea. The crews of all four were unhurt.

In the Tetuan region, aeroplanes dropped 3,206 bombs and 418 sacks of food between Sept. 3-13. Two aeroplanes were lost and four members of their crews were wounded.

The Infante Don Alfonso, cousin of the King of Spain, is in command of a squadron operating at Alhucemas.

ARITHMETICAL PROGRESSION.

The following communication is from *The Times* cor spondent at Basra :—

Sir Arnold Wilson, general manager of the Anglo-Persian Oil Co pany, Limited, at Mohammerah, was stranded in the marshes of t Karun River for two days this week-end. He had been asked by Vice-Marshal Sir Sefton Brancker to send out a party to search the aeroplane which had had to make a forced landing in the vicin on Saturday.

Sir Arnold Wilson discovered the wrecked machine, but four ae planes which had been sent out to assist failed to find him until hours later.

[" The aeroplane " is apparently that in which Sir Seft made a forced descent some days earlier with the result th according to the press, he walked for two miles in the des and plus fours looking for a taxi.

Just why Sir Arnold Wilson went to look for the ae plane in the desert is not apparent. It sounds rather li sending Lord Bearsted (late Sir Marcus Samuel) on a walki tour in Lincolnshire to look for an airship. Or sending Alan Anderson of the Orient Co. to look for an R.A. Coastal Area picket-boat that has gone adrift.

Now we await the news that Sir John Higgins has go to look for the four aeroplanes which failed to find Sir Arn Wilson. And then probably the R.A.F. Reserve of Pil will be mobilised to look for the A.O.C. Iraq. But, gr is the power of the Director of Civil Aviation. *Magnus Branckerius et prævalebit.*—Ed.]

FOKKER AIRCRAFT IN ITALY.

It has been reported that Signor Nicolas Romeo, the signer-constructor of the famous Alfa-Romeo car, has tak over the building licence for Fokker aircraft in Italy.

He has also taken over the Officine e Cantieri Montorfa of Naples, a small but progressive aircraft-constructing fi that has recently received an order for 20 Fiat C.R.1 purs aircraft from the Government.

It would appear that this factory will be the future Al Romeo aircraft works, and that the automobile factory w be kept solely for automobile construction.

A number of Alfa-Romeo engineers are being sent to t Fokker factory in Holland to study the Fokker methods.

Under Signor Romeo the Alfa-Romeo car has become wor famous. Its entry into the racing world has culminated its winning the 1925 Grand Prix in both France and Ita

It will be interesting to see whither his entry into t aircraft-constructing field, in conjunction with Fokker, w lead.

ROME—MELBOURNE—TOKYO.

The Marchese di Pinedo and his mechanic, Signor Ca panelli, who are flying from Melbourne to Tokyo on a Sav S.16bis (450 h.p. Lorraine-Dietrich engine), left Manila 08.30 hours on Sept. 16 and arrived at Aparri, Northern Luz a distance of 260 miles, at 15.30 hours.

The flying boat had previously been overhauled by the U Naval Air Service at Corregidor, Philippine Islands.

On Sept. 19 they flew from Aparri, Luzon, to Tams Formosa.

On Sept. 21 they flew from Tamsui, Formosa, to Shangh arriving at the latter place at 16.30 hours.

TOKYO—PARIS.

Major Abe, Imperial Japanese Army, and Mr. Kawachi, w are flying from Tokyo to Paris and London, have reach Berlin.

They left Tokyo on July 25 on two Japanese-built Breg XIX biplanes (400 h.p. Lorraine-Dietrich engines), and Aug. 23 reached Moscow.

On Sept. 15 they flew from Moscow to Königsberg. Sept. 17 they left Königsberg together, but owing to engi trouble Mr. Kawachi was forced to return. Major A landed at the Tempelhofer Feld on the 17th inst., and Kawachi reached there the next day.

Owing to the lack of aerodrome and ground arrangemen over the route they have followed through Korea, Manchu and Siberia, the two machines took some seven weeks reach Germany.

The total flying time from Tokyo to Berlin works out 65 hours.

The two Japanese aviators will fly to Paris, the real des nation of the flight, some time this week. After a short st there they will fly to London, then back to Lyon, where th will be the guests of the French Aéronautique Militaire, a then on to Rome.

They will return to Japan by boat.

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THE BEARDMORE-ROHRBACH INVERNESS TYPE FLYING BOAT.

The Inverness flying boat which arrived at Felixstowe on Sept. 18 from Copenhagen is one of a number of experimental aircraft which have been ordered by the Air Ministry from William Beardmore and Co. Ltd. The Beardmore firm, it will be recollected, have acquired the British rights in the system of duralumin construction developed by Dr. Rohrbach who is one of the earliest pioneers of metal construction for aircraft. During the war he was largely concerned with the big experimental seaplanes produced by the Zeppelin Company, and after the war Dr. Rohrbach designed and built the four-engined Staaken monoplane, whose treatment by the Inter-Allied Commission of Control attracted so much attention some few years ago.

The Inverness is essentially of the same design as the Rohrbach R.O.II seaplane which has frequently been mentioned and illustrated in these pages, and the first machine delivered to the Air Ministry has been built at the Rohrbach Works, Copenhagen, presumably in order that trials may be carried out at the earliest possible moment so that future versions—which are to be constructed at the Beardmore Works, Dalmuir—may incorporate any modifications which are found to be desirable to meet British service requirements.

The essential feature of Rohrbach construction is the adoption of duralumin as the sole material and its employment in the simplest of forms—plain channel and angle sections and flat plates—all in substantial thickness, and the methods of manufacture are rather those of bridge or shipbuilding than those usually associated with aircraft.

In general arrangement the Inverness is a cantilever monoplane with a central hull, a pair of very large side floats carried close in to the centre line, and two engines mounted above the wings driving tractor screws. The wings have an abnormally large dihedral angle—a feature which has been found to improve the flying qualities of the machine, particularly as to its manœuvrability, and which has the further advantage of keeping the wing tips well away from the sea. The large side floats give the machine ample lateral stability on the water, and—thanks to their short distance from the centre line—do not impose such serious stresses on the wings as do the normal wing-tip floats.

The wing structure is of the type used on the Staaken monoplane. The main member is a box-girder, built up of two channel sections (occupying positions approximately similar to those taken by front and rear spars in a normal wing) united by top and bottom plating which serve both as main members of the girder and as the surface of the wing. There are, properly speaking, no ribs, but the skin is supported at intervals by bulkheads.

To this girder are attached nose and trailing edge members which complete the wing profile. These portions are built up on rib-like members of angle section metal, covered with sheet. They are made in sections and are fixed to the main girder by easily accessible bolts, arranged in such a manner that by undoing the bolts on one edge, any nose or tail section may be folded round the other edge. This permits the inspection and if necessary painting of the interior of the nose or tail section and of the outer face of the box-girder. It is also possible to get at and to inspect the whole of the interior of the main girders.

Obviously any damaged nose or trailing edge section may easily be removed and repaired or replaced.

The hull is built up on channel and plate bulkheads covered with rivetted-on flat plates. The whole is divided up into a number of water-tight compartments by bulkheads possessing water-tight doors. Thus the effective subdivision of the hull does not interfere with easy access to the whole of the interior. This is important—not merely as permitting thorough inspection and repainting whenever desirable—but it simplifies construction—because it permits of all fastenings being made by through rivets accessible on either side.



NOVEL ENGINE MOUNTINGS. — The mounting of the two Napier Lion engines on the Beardmore-Rohrbach flying boat.

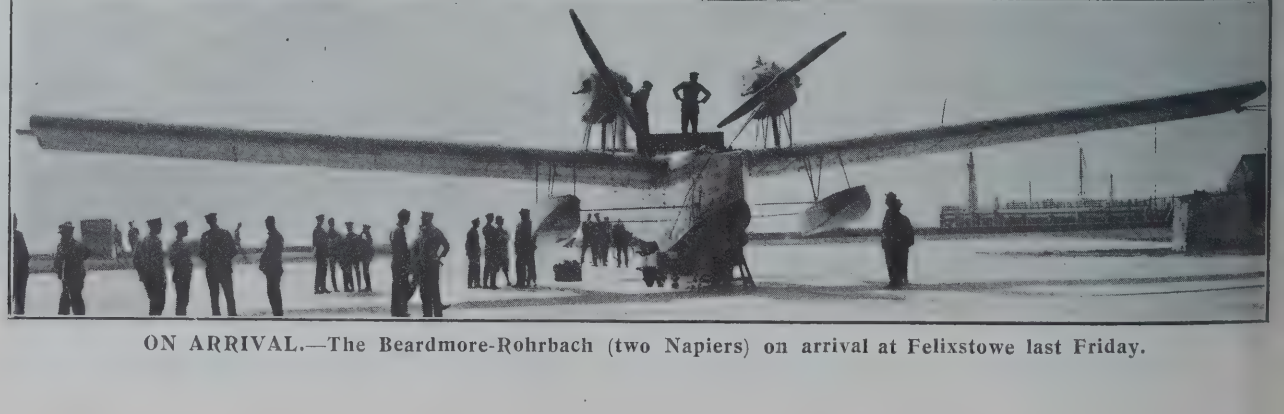
The tail unit is somewhat unusual. The tail plane and fi are made as one unit, and are carried above the hull on a vertical tower with bearings top and bottom around which the whole tail can be rotated. This allows the fin to be set ove to relieve the pilot of any rudder-bar load in the event o failure or partial failure of one engine, with the minimum o complication.

The engines—in the Inverness, two Napier Lions—are carried on tubular struts well above the wings, and as close together as the airscrew diameters will permit. The air screws are thus well above the water and well protected from spray, and, at the same time the offset moment due to one engine alone is reduced to a minimum.

The navigating personnel are accommodated side by side ahead of the wings and the airscrews, where they have the best possible view. A compartment for an engine attendant is provided aft of this, and is fitted with all the instruments and controls necessary for the supervision of the fuel, lubrication, and cooling systems, thus making it possible to relieve the pilot of attention to these details.

Dr. Rohrbach has for long upheld the view that large aircraft—other than airships—can only be constructed practically by steadily increasing the wing loading as the size of the machine increases. This involves necessarily increasing landing speed with increasing size. On the other hand it undoubtedly produces a more economical machine, and a more robust machine. There is a good deal to be said for the view that increased landing speeds can be tolerated in large machines—more particularly in the case of seaplanes—particularly as increasing the loading permits one to build a machine which is more robust in detail for the same overall strength.

The Inverness has been designed accordingly, and the results obtained in actual service with this type will be awaited with great interest. It is fairly obvious that aeroplanes much larger than those now in existence cannot be built without resort to heavier loadings than are now usual, and practical experience of the qualities of such heavily-loaded types is necessary before notable advances can be made.



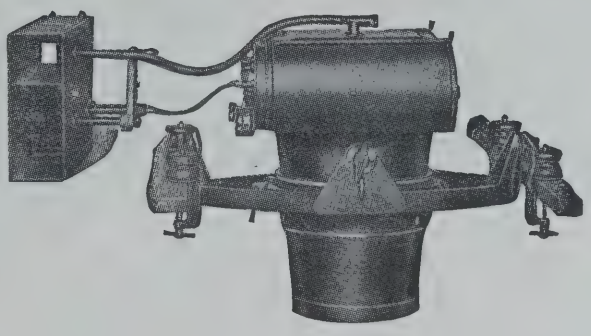
ON ARRIVAL.—The Beardmore-Rohrbach (two Napiers) on arrival at Felixstowe last Friday.

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for Topographical Work

The Eastman Aero Camera (Model K1) is entirely automatic in action. Driving power is provided by a wind motor containing a rotary paddle wheel, with a lever control, which also regulates intervals between exposures. Any number of exposures—size $9\frac{1}{2}$ ins. x $7\frac{1}{16}$ ins. (18 x 24 cm.)—up to 100 can be made on one 75 ft. roll of Eastman Daylight Loading Film. The film is held flat by the constant suction caused by the Venturi tube. Shutter speeds can be varied at will from 1/90 to 1/310th of a second. Fitted with either 12 in. or 20 in. f4.5 lens.



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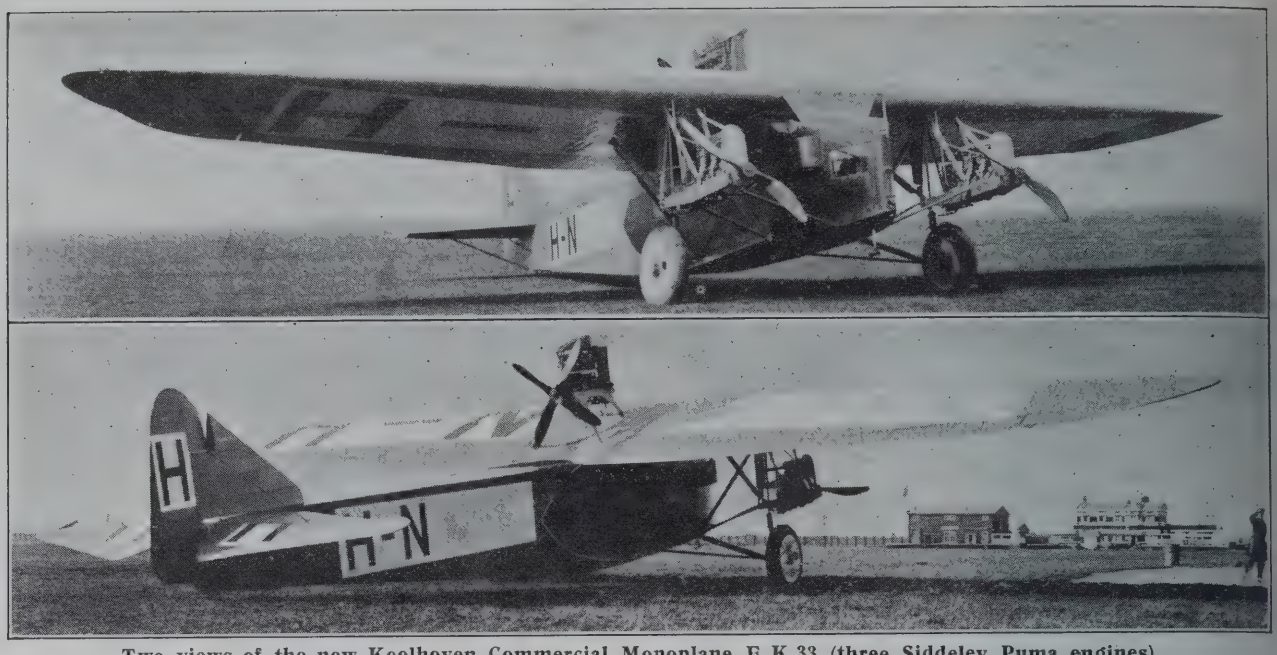
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THE KOOLHOVEN F.K.33.



Two views of the new Koolhoven Commercial Monoplane F.K.33 (three Siddeley Puma engines).

Photographs which are here reproduced give an excellent idea of the new three-engined monoplane, designed by Mr. Frederick Koolhoven, and built by the Nationale Vliegteug Industrie, for commercial service. It will be recollected that a scale model of this machine was exhibited at the Paris Salon d'Aéronautique in December last, and attracted a considerable amount of attention.

The machine, in its completed state, follows very closely the model then exhibited—the only differences that are in the least obvious are in details of the engine installation—notably the header tank, above the central engine, and the struts of the wing engines.

The most interesting feature of this machine is the engine arrangement. The two side engines are carried below the monoplane wing in a manner not unlike that of the Farman Jabiru, except that the winglet of the Jabiru is represented by struts. Unlike any other three-engined machine, the central engine drives a pusher screw, and is carried above the wing and fuselage on a kind of trestle. Thus in front elevation the engines are arranged at the angles of a triangle—an arrangement which permits the two wing engine axes to be brought close in to the centre line without their slipstream interfering with that of the centre engine. On test this engine disposition has been found very satisfactory, in that the machine maintains a straight course without any appreciable rudder loads, despite wide variations in r.p.m. of the two wing engines. Another excellent feature of the engine installation is that all engines are completely accessible for inspection and overhaul without the removal of cowling. Another, and characteristically Koolhoven, feature is the very wide track of the undercarriage—which has oleo shock-absorbers. Thus the machine should prove to be exceptionally safe for landing on the roughest ground.

In general arrangement—apart from the engine disposition—the F.K.33 is a high-wing cantilever monoplane with a large, nearly rectangular, fuselage. Seats for pilot and navigator are arranged side by side in the nose of the fuselage, below the leading edge of the wing, and these seats are protected by a wind shield which runs up to the wing itself. An extremely roomy cabin, with 12 seats for passengers, is arranged behind the pilot's seat, with a side-entrance at the rear end.

The wing is practically elliptic in plan form—an arrangement which permits the use of a wing of great chord, and, consequently, ample spar depth at the centre, and at the same time allows of a high aspect ratio and consequently high aerodynamic efficiency.

The tail unit is of the usual type—monoplane tail plane and elevators and a single fin and rudder. The tail plane and elevators form a surface of roughly trapezoidal form, which gives a similar combination of structural and aerodynamic efficiency to that obtained by the elliptical wing plan.

The ailerons are of very high aspect ratio—their chord being very narrow, and both these and the elevators should give exceedingly light control, despite the absence of balancing. The rudder, which, compared to the other two controls, has a relatively large chord, is balanced by the horn method.

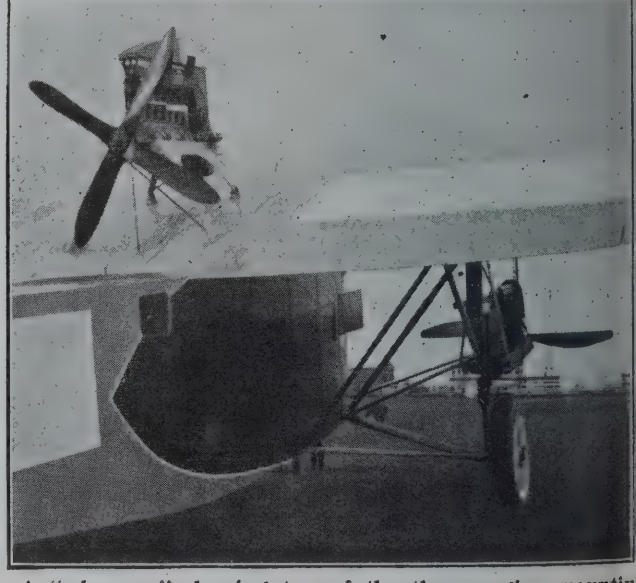
With full load—gross weight 10,250 lbs—the F.K.33 both flies and climbs on any two engines. All the tests have been carried out by a Dutch pilot, whose previous large experienc has been confined to the lighter class of military machine and who had never before flown any multi-engined type- which suggests that the F.K.33 is by no means a difficul machine to fly.

Altogether the F.K.33 would seem to be possessed of pre cisely those qualities which are needed to make commercia flying both safe and profitable. The present machine is th first of the type, and in future machines an appreciable savin in weight can be expected, which will mean an increase i the available pay-load, which could obviously be further in creased by the use of modern engines of a lower wt./h.p than the Puma.

But even so, a twelve-passenger machine with three engine of a total of 690 h.p., capable of 117 m.p.h., compares ver favourably indeed in regard to paying load per h.p., with th best single-engined types yet produced. If the superior re liability of the three-engined type can be secured at no sacr fice of paying load, there is no excuse for the continued us of the single-engined type.

The main characteristics of the F.K. 33 are :—

Span	75 ft. (22.9 m.)
Wing area	1,100 sq. ft. (102 m².)
Weight loaded	10,250 lbs. (4,660 kg.)
Engines	Three Siddeley Pumas—230 h.p. each.
Wing loading	9.32 lbs./sq. ft. (45.7 kg./m².)
Power loading	14.8 lbs./h.p. (6.75 kg./h.p.)
Landing speed	45 m.p.h. (73 km./h.)
Max. speed	117 m.p.h. (189 km./h.)
Cruising speed	101 m.p.h. (163 km./h.)



A "close-up" showing two of the three engine mountin and the Undercarriage.

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A VISIT TO THE HAWKER COMPANY.

Once in a while virtue, besides being its own reward produces a return of a more tangible nature and bread cast upon the waters occasionally returns with compound interest. As a rule pioneers like other prophets lack honour in their own country but the history of British Aviation shows that in the main those who had the virtue to be pioneers have done rather well for themselves.

One therefore felt the more satisfaction when one visited the works of the H. G. Hawker Engineering Company Ltd. recently to find that everything is going well with that firm. The Joint Managing Directors of the concern are Mr. T. O. M. Sopwith, C.B.E., and Mr. F. Sigrist, M.B.E., and both of them can justly claim to be among the earliest pioneers of flying in this country.

One's earliest recollection of Mr. Sopwith was his appearance at Brooklands on an Avis monoplane, built by Messrs. Howard Wright and W. O. Manning, the first of the type having been built for the Honourable Alan Boyle. Although at that time he was comparatively a mere youth, Mr. Sopwith had already done a good deal of motor-car and motor-boat racing, and he took to flying quite naturally.

Mr. Sigrist was engineer in charge of his cars and motor-boats and he also took quite naturally to the handling of aeroplanes and aero-engines. Shortly after he had learned to fly the monoplane Mr. Sopwith acquired a Howard Wright biplane and a Blériot monoplane and with them he visited the United States where his flying created something of a sensation. He returned to England bringing with him one of the original Wright biplanes, which he and Mr. Sigrist altered to take a British engine, and on this machine Mr. Harry Hawker, who had come over from Australia in the hopes of getting into aviation, learned to fly, and ultimately developed into one of the finest pilots in the World.

A year or two before the outbreak of war Mr. Sopwith, who had previously won the first Aerial Derby, decided to manufacture aircraft, and produced a number of interesting machines for the Navy. Backed by the far-seeing policy of Mr. Churchill and Capt. Murray Sueter (now Rear-Admiral and M.P.) the firm produced a variety of types, both seaplanes and land-going machines, and when in 1915 the Fokker monoplanes gained a decided ascendancy over the Royal Flying Corps, mounted on the standardised B.E.s produced by the Royal Aircraft Factory, the Sopwith two-seater, known as the "one-and-a-half-strutter," with the gunner behind the pilot, turned the scale in favour of the British pilots.

Thereafter came the Sopwith Pup and the Camel and ultimately the Snipe, each in turn the best single-seat fighters in the War. To the Sopwith Company also belonged the credit of producing the first British torpedo-dropping machine, which was known as the Cuckoo.

Towards the end of the War the Sopwith Company were employing several thousands of hands and the firm's output was enormous. After the Armistice, when war contracts ceased, the firm embarked on the manufacture of motor-cycles, and produced an excellent machine, but unfortunately the motor slump caught the firm unawares and owing to the Government's demand for huge sums in Excess Profits Duty the firm was obliged to go into voluntary liquidation.

That may be called the end of the pioneer work done by Messrs. Sopwith and Sigrist. The virtue to which one referred in the opening paragraph of these notes then made itself evident. Instead of retiring into comfortable oblivion on the comparatively handsome sums which they had made as individuals during the War, the Sopwith-Sigrist-Hawker combination formed the H. G. Hawker Engineering Company Ltd. out of their well-earned wealth, and carried on the work which they had begun as the Sopwith Company. Unfortunately Mr. Harry Hawker was killed, or died in the air, while flying, but Mr. Sopwith and Mr. Sigrist still caried on. And as soon as a reasonable opportunity offered they went back into the aircraft business and again staked their own capital on their faith in aviation.

In the meantime the affairs of the Sopwith Aviation Company were satisfactorily wound up, though of course tens of thousands of pounds must have been lost in selling off the immense stock of machinery which the firm had acquired during the War. The net result at any rate was that af adjusting the argument about the Excess Profits Duty w the Government the firm paid all its creditors 20s. in t Pound, unlike some firms whose directors made vast f tunes during the War, and allowed the firms themselves disappear from the list of existing companies along with t money of their creditors.

The affairs of the Sopwith Company being comforta settled a good many people expected the Hawker Compa to assume the name of the old Sopwith Company, in view the enormous goodwill which was associated with the nar But out of loyalty to their dead colleague the Directors s stick to the name of Hawker.

During the first year or two after the firm's return to a craft work the factory was chiefly employed on reconditioni D.H.9as. Then the Woodcock with the Bristol Jupiter gine made good, and a number of these was ordered.

At the R.A.F. Pageant this year the Hawker Heron w a Bristol Jupiter engine put up a particularly brilliant p formance quite early in the proceedings and was then fortunately put out for the rest of the day by a slight m hap to the airscrew which could not be replaced in time the machine to fly again. The Hawker Hedgehog, a t seater, also attracted much favourable comment. And gathers that both of these machines find favour with R.A.F. Authorities.

At the Sopwith Works one had an opportunity of inspe ing the internal construction of the Heron. One may describe it in detail, but one can say that it is about the b and cheapest method of all-steel construction for mass p duction purposes that one has ever seen. It is possible t if the Air Ministry experts permitted the use of welded st tube, as is proved and approved in the United States, and Germany and in Holland, there might be a possibility of bu ing fuselages more quickly and perhaps more cheaply. apart from that one cannot imagine any quicker, simp neater and cheaper way of building a steel fuselage, and th can be no question at all about its strength and rigidity.

Sundry other machines were under construction in Works, both of high-speed and weight-carrying types, all them extremely interesting and all bearing that unmist able stamp of Sopwith-Sigrist design and construction wh made the Sopwith machines so distinctive during the w But of these nothing may be said owing to the Air Ministr requirements. The whole of the original factory is now voted to aircraft and is full of men all working hard and che fully, as seems always to be the custom where Mr. Sig has the handling of Labour. He has always struck one having a particular talent in this direction.

Altogether the firm seems to be doing extremely well. Directorate of the firm, which consists of Mr. F. I. Benn and Mr. F. S. Spriggs in addition to Mr. Sopwith and Sigrist, seem to have their hands pretty full what with execution of their existing orders and the preparation of n designs and the negotiation of future orders in this coun and abroad.

Certainly the firm deserves success, for the quality of workmanship to-day is such as to maintain fully the h reputation which was won by the Sopwith Aviation Compa during the War. One can only hope that the present p gressive policy of the firm may continue so that on the o break of the next war it will be ready to do work for Empire as valuable as that done by the old Sopwith Aviat Company.—C. G. G.

THE AMUNDSEN POLAR EXPEDITION.

A lecture will be given by Captain Amundsen at the Cent Hall, Westminster, on Monday, September 28, at 8.30 p.m., his polar flight.

The lecture will be illustrated with coloured slides a photographs taken during the expedition.

The Chair will be taken by Captain E. R. G. R. Evans, C D.S.O., R.N.

As this is the only occasion on which Capt. Amund will deliver this lecture in London, those interested sho make a note of the date and get their tickets as soon as p sible. Tickets are obtainable at the Central Hall Box Of and most of the ordinary agencies.

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 19; Tuesday, 20; Wednesday, 18; Thursday, ; Friday, 17; Saturday, 21; Sunday, 10.

MPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne; London —Rotterdam—Amsterdam—Berlin: Machines 60, passengers 320, freight 17 tons.

IR UNION:
Paris—London: Machines 49, passengers 201, freight 9 tons.

.L.M.:
Amsterdam—Rotterdam—London: Machines 12, passengers 50, freight 2 tons.

EUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 0, passengers 0.

PECIAL MACHINES:

E HAVILLAND HIRE:
Machines 1, passengers 1.

Total number of trips by British machines: 61, carrying 321 passengers. Foreign machines: 61, carrying 251 passengers.

mparative Figures:

or week ending Sept. 20:
Machines, 122; Passengers, 572; Crews, 163; Total personnel, 735.

rresponding week, 1924:
Machines, 146; Passengers, 601; Crews, 177; Total personnel, 778.

rresponding week, 1923:
Machines, 109; Passengers, 379; Crews, 172; Total personnel, 551.

rresponding week, 1922:
Machines, 98; Passengers, 337; Crews, 164; Total personnel, 501.

rresponding week, 1921:
Machines, 66: Passengers, 154; Crews, 84; Total personnel, 238.

rresponding week, 1920:
Machines, 100: Passengers, 261; Crews, 123; Total personnel, 384.

Croydon Notes.

The D.H.34s, which have done so much good work on the ritish Air Lines since 1922, are to disappear from the service the end of the present financial year, namely, at the end March, 1926. After that no single-engined machines are be used by Imperial Airways Ltd. except perhaps an odd eighter or so and a D.H.50 as a taxiplane.

The D.H.34 was produced in 1922 and was, under the bsidy conditions operating at that time, an ideal machine. ut it was built to meet the conditions of the time and did very well. Now however it is to depart with a fine re- rd behind it of much work well done.

The De Havilland Company realising that the time for the ulti-engined machine has now arrived has several such signs in hand. Remembering the great experience the rm has had in the production of civil machines, and re- embering the speed and efficiency of the twin-engined .H.10 and 10a, one looks forward to the early production one of the new types.

Since the air lines first started in 1919 there has always een a big percentage of De Havilland machines running. he firm will still be represented by the 50 next year, after hich some of their new designs are certain to be in evidence.

By April next year there will be nine W.8s of various ttering. There will be the four new twin-Napier jobs, the ree old Rolls-Royce machines, all of which have been, or e being, renovated, the twin-Puma-cum-Rolls-Royce achine, and the triple-Jaguar Hampstead.

This latter machine is really a flying test-bed to try out e Jaguar under air line conditions before the Argosies appear the scene.

The more one sees of the pilots' uniforms the more one kes them. All new things seem strange at first and now at things have settled down into their normal course one nnot help thinking that they are a great improvement over ufti.

However well dressed a man may be, the captain of ship mufti on the bridge would look all wrong. Such costumes call the bargee or trawler man rather than the officer of a nart passenger boat. And there is no doubt that passengers ho see their pilot in a reasonable-looking uniform feel that ey are in the hands of a responsible official.

It is true that on occasion they may only catch a glimpse him before he disappears into a leather coat or a Sidcot it, but the effect is there just the same and it can only act to the good of civil aviation. And at any rate one can ow distinguish a pilot from the driver of a motor-scooter om Tooting or Peckham.

On reading these notes through one finds for the first time r weeks that one is, curiously enough, in complete agree- ent with the policy of Imperial Airways Ltd. Evidently ere is something in psychological momentum, for one notes at at long last the shares of the Company are making a ove upwards and have gone in the last few days from 1s. 9d. 4s. 6d.

There is no doubt that a big improvement has set in and w that the management are on the threshold of getting w machines things should move rapidly at long last in e right direction. The outlook if not bright recalls Mr. . George's remark about getting to the end of a dark tunnel. Even if we do not catch up the French next year in passenger figures it seems possible that some of the new machines may pay for their own running expenses without the help of the subsidy. In which case the subsidy will no doubt be allotted to the frequent overhaul of old machines, the purchase of new, up-to-date ones, and the extension of air routes.—G. D.

The Lancashire Club First Again.

On Sunday last the Lancashire Aero Club sent two pupils who had learned to fly with the Club for their first solo flights and but for darkness three more would have gone also.

Thus the Lancashire Club, which of the Light Aeroplane Clubs was the first to start operations, is still keeping its lead. Congratulations to this go-ahead concern.

Not content with its flying activities the Club monthly produces an interesting "roneoed" brochure entitled "The Elevator" edited by Mr. Rex Williams, in which the activities of the Club are recorded. This is an extremely well got-up, well edited, and informative work, and one commends other clubs to study it and keep it as a model.

This journal states that the charge for flying is £1 per hour, which is 10s. cheaper than at the London Club.

PERSONAL NOTICES.

DEATHS.

CAY WILLIAMS.—On Sept. 16, at Digby, as the result of a flying accident, William Cay Williams, Flg. Off., R.A.F.

Mr. Cay Williams was formerly in the Leicestershire Regt. and joined the R.A.F. in July 1923. He was posted to No. 24 (Communication) Sqdn. in October of the same year. He was appointed flying instructor at No. 2 F.T.S., Digby, in February, 1925.

KELLAWAY.—On Sept. 16, at Digby, as the result of a flying accident, Frederick Martin Kellaway, Plt. Off., R.A.F.

Mr. Kellaway entered the R.A.F. with a Short Service Commission in January last and was under instruction at No. 2 F.T.S., Digby.

SPURWAY.—On Sept. 14, as the result of a flying accident, at Sea-land, William Langdon Spurway, Plt. Off., R.A.F.

Mr. Spurway joined the R.A.F. with a Short Service Commission in March, 1925. He was the only son of the Rev. and Mrs. Spurway, Edworth Rectory, Baldock.

MARRIAGE.

GNOSSPELIUS—COLLINGWOOD.—On Sept. 15, at Hawkshead Church, by the Rev. R. B. Luard-Selby, Vicar of Ambleside, Oscar Theodore Gnosspelius, to Barbara, second daughter of Mr. and Mrs. Collingwood, Lanehead, Coniston.

BIRTH.

ROACH-PIERSON.—On Aug. 15, at East Malvern, Victoria, Australia, to the wife of P. Roach-Pierson, R.E., R. of O. (late R.N.A.S.)—a son.

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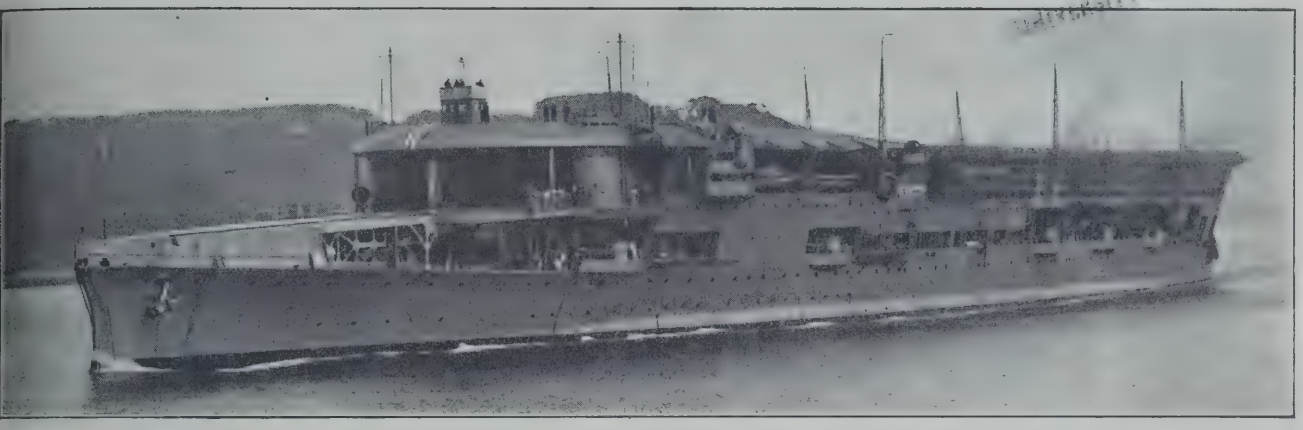
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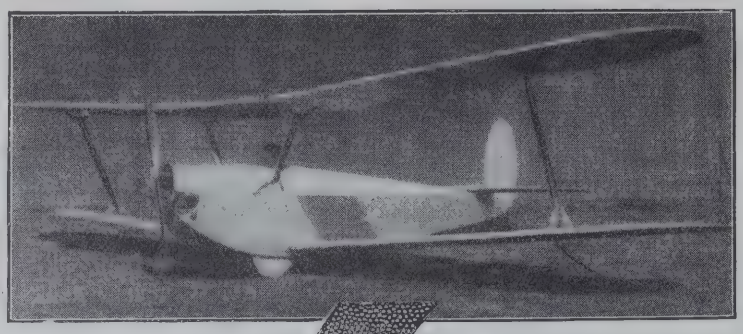
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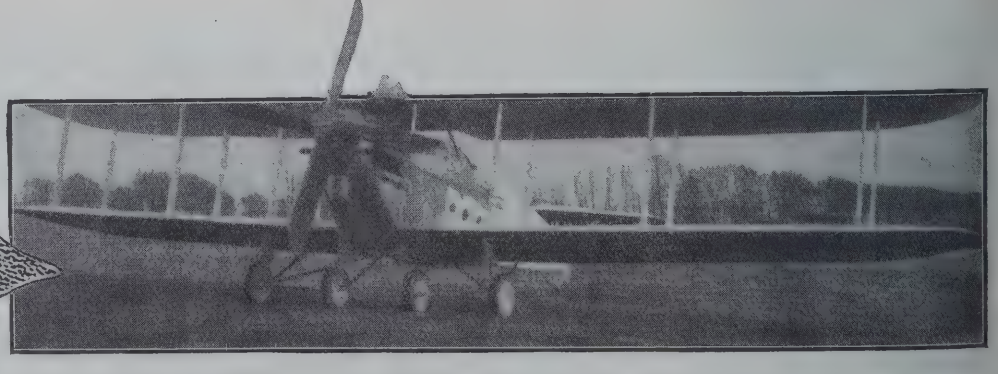
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ON MANOEUVRES.

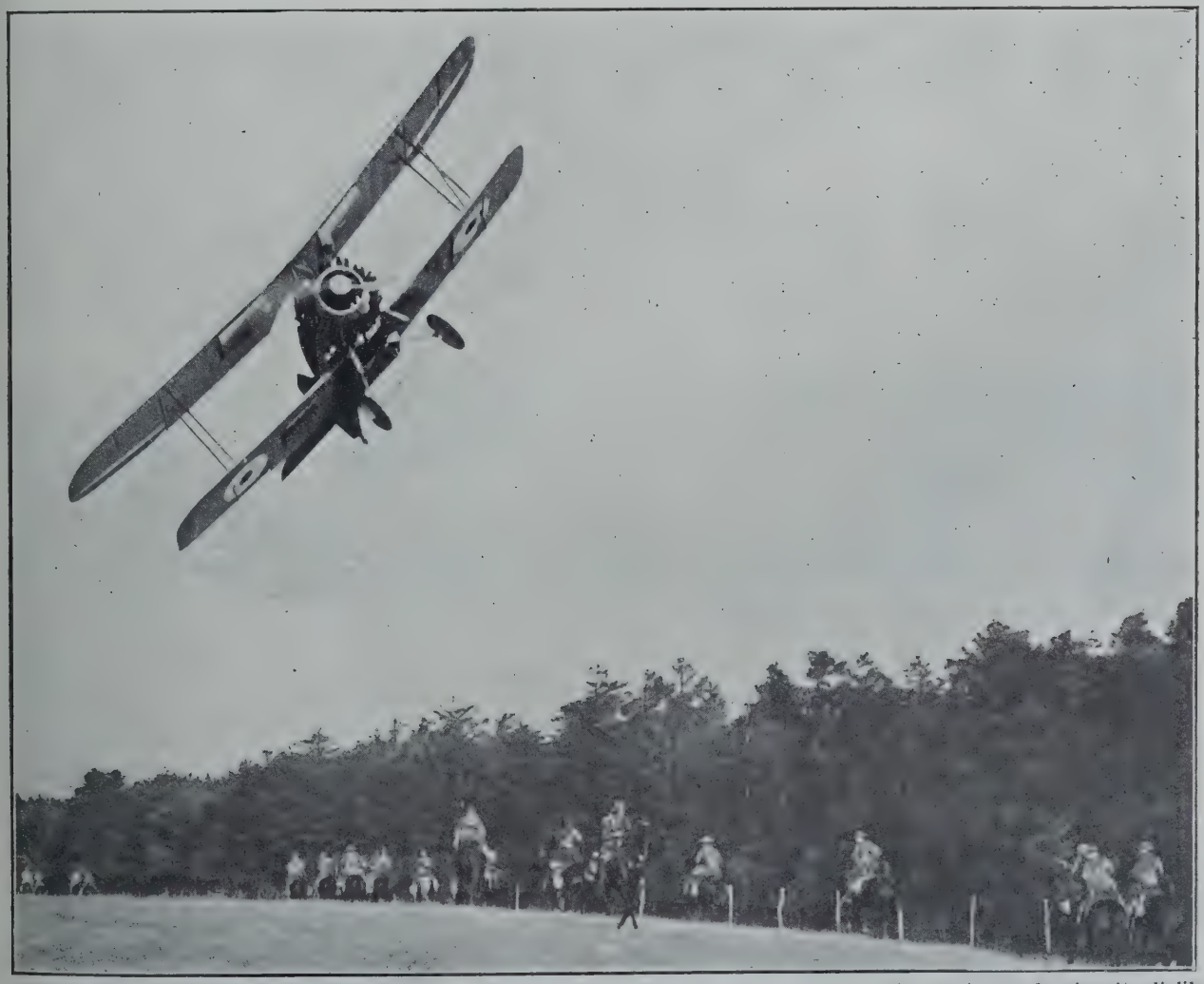
Some time ago somebody describing a mutual friend remarked "He is a queer mixture of truth and fiction in which the truth is stranger than the fiction. When he is relating an ordinary incident he has probably invented it and when you think he is lying about one of his adventures he is probably telling the truth." Army manœuvres, and especially the use of aircraft in the course of the manœuvres, are something like that The things which happen on manœuvres and look most like what would happen in action are probably exactly the things which would be impossible in war whereas the obviously impossible things which occur on manœuvres are apt to be precisely what would happen in a real battle.

The three days' imitation war which raged on September 22, 23 and 24, around Basingstoke, Whitchurch, Andover and Stockbridge between the Army of Wessex commanded by General Sir Alexander Godley and the Army of Mercia commanded by Lieut.-General Sir Philip Chetwode provided considerable entertainment for several thousands of people, Service and civilian, and illustrated beautifully those two apparently opposing aphorisms "The more things change the more they remain the same" and "We approach every war as novices." But still, those aphorisms only mean that the principles of war according to Clausewitz never alter whereas details constantly change.

This private war of ours has been so largely and graphically and, on the whole, intelligently described by the various experts and inexperts of the daily newspapers that there is no reason to discuss it extensively in THE AEROPLANE even if the space were available in which to do so. Those who desire to be as fully informed as possible on the subject are recommended to get *The Times*, *The Telegraph* and *The Morning Post* for Wednesday, Thursday and Friday of last week.

In *The Times* they will find solid information, evidently written by an officer of experience. In *The Telegraph* they will find a series of brilliant, if on occasion disputable, articles by Captain Basil Liddell-Hart, who served for some time in the R.A.F. and has both the soldier's and the aviator's point of view besides possessing the kind of intellect which is generally described as the staff mind, that is to say he regards a war with a wide outlook and not from the limited point of view of the regimental officer on the ground. In *The Morning Post* they will find the amusing stories of Sir W. Beach Thomas, who was one of the civilian newspaper correspondents at Headquarters in France during the War 1914-18. But also in *The Morning Post* they will find a series of very important articles by Field Marshal Sir William Robertson. From all these varying points of view much useful information may be gained.

Therefore all one need say here is that the Mercian Army



"GLOSTER HATES YOU" (Richard III).—A Gloucestershire Grebe belonging to the Wessex Army showing its dislike in a practical manner by "ground-straffing" Mercian Cavalry. It is interesting to notice that while the men look at the machine the horses turn their heads away from the threatened danger.

commanded by Sir Philip Chetwode, who is essentially a cavalry officer and distinguished himself particularly in his organisation of General Allenby's cavalry movements which did so much to stop the war in Palestine in 1918, was superior in numbers, especially in infantry, whereas the Wessex Army, commanded by Sir Alexander Godley, an infantry soldier, was inferior in total numbers but superior in cavalry and mechanical transport.

Apparently the idea was to discover whether a mechanicalised army ostensibly capable of waging a "twenty-mile-an-hour war," about which we have heard so much in the Press lately, has any real advantage over a well-organised force equipped with ordinary army transport and limited by the traditional two miles an hour of marching infantry. Both sides were well supplied with tanks of the lighter kind but apparently the very largest tanks were not used.

The Wessex Army had three Squadrons of the R.A.F. attached, namely, No. 16 Army Co-Operation Squadron, plus a special flight, on Bristol Fighters, No. 39 Day Bombing Squadron on De Havilland 9as and No. 56 Squadron, single-seat fighters on Gloucestershire Grebes. The Mercian Army had Nos. 2, 4 and 13 Army Co-Operation Squadrons on Bristols No. 207 Day Bombers on D.H. 9as and No. 25 single-seat fighters on Grebes.

On The Scene.

Owing to the exigencies of the press and so forth one was only able to visit the manœuvres area on one day, which was Wednesday, the middle day of the battle. Naturally one went to the Aerodrome at Andover, as being the most likely place to pick up information as to whether anybody had seen a war, and if so where. Here one found the first example of things remaining the same the more they change.

That delightful state of affairs which military writers describe as "The fog of war" had settled down over the battle area with an intensity worthy of a London pea-souper. Sir Alexander Godley's Head-Quarters were housed in certain of the Aerodrome buildings and the R.A.F. mess was being used by the Army as its own. The greatest good will existed between the Army and the Air Force but with all the good will in the World nobody knew what was really happening.

For one thing, the Mercian bombing squadron had come over early in the morning and had bombed Godley's Head-Quarters. So the Umpires had put H.Q. out of action for two hours. Fortunately the General himself happened to be somewhere with the troops in the field, otherwise presumably he would have been out of action also and his second in command would have had to take over the war. But for those two hours the Wessex Staff had completely lost their Army.

A minor complication arose from the fact that in the advance the Mercian Army had captured the ends of a number of the Wessex field telephone lines and had sent in misleading messages pretending to come from the retreating Army of Wessex.

All that was known was that the big push delivered by Godley's left wing on Whitchurch the previous day had failed, and that the troops had retreated as hard as they could during the previous night leaving Chetwode's right wing as completely in the air with nothing to attack as von Hindenburg left the British Army when he retreated suddenly from the Somme at the end of 1917 and presented us with twenty miles of devastated country to cross before we could get in touch with the enemy.

Apart from that one was told that all the visiting officers and foreign attachés and so forth had been advised to go to Stockbridge, where there would probably be a big battle late in the day.

The trouble from the Wessex point of view was that nobody could discover the whereabouts of Chetwode's First Division which was expected to attack the Wessex right wing at Stockbridge. The Wessex aviators had been hard at work in the pouring wet the previous day, but, although they had discovered troops somewhere down between Stockbridge and Winchester and Romsey, they were apparently unable to make sure what they were or in what sort of numbers.

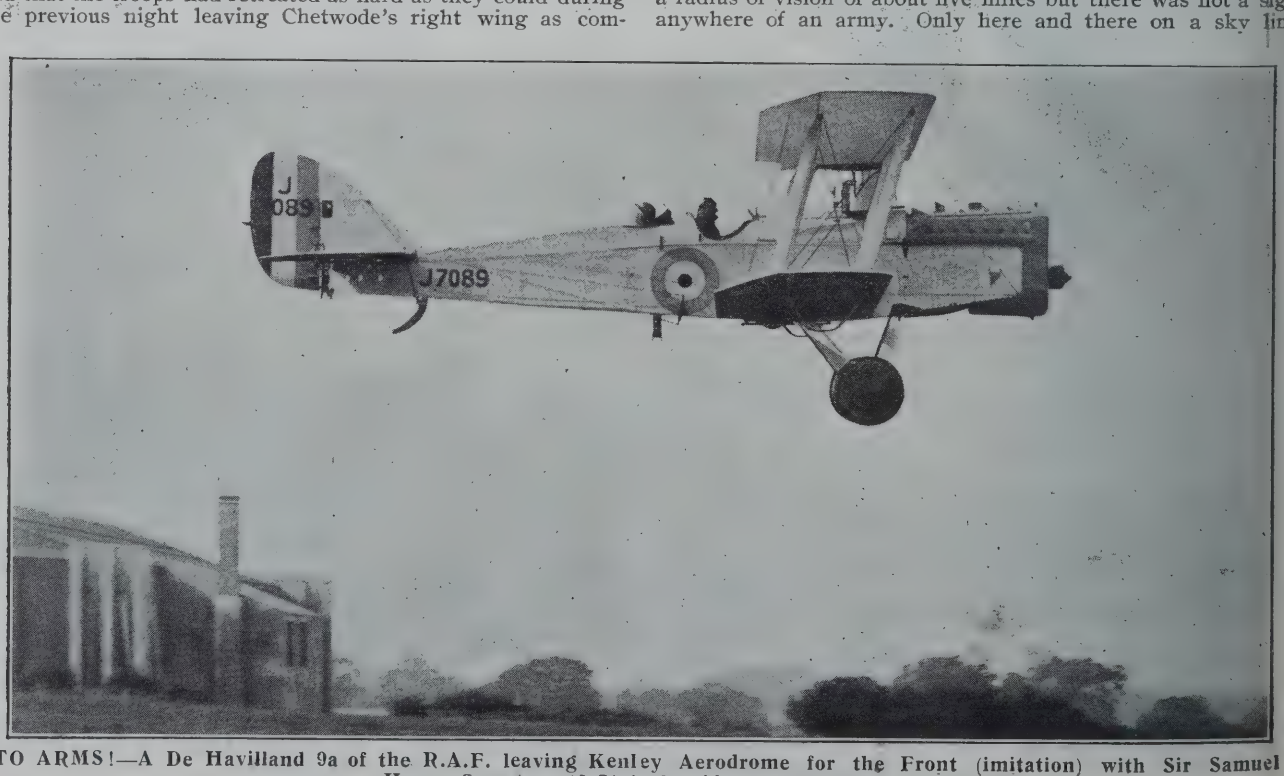
Consequently, accompanied by a youthful student of war one drifted off to Stockbridge by way of the Wallops (Over, Middle and Nether), finding only a few of the Wessex troops, mostly R.E. Signals, under the trees around St. John's Cross on the Andover-Salisbury road. On the heights above Stockbridge, where Chattis Hill Aerodrome now lies in heaps of bricks and piles of rusting corrugated iron, we came across some of Godley's outposts, little bunches of men with machine guns lying under straw from neighbouring ricks and a couple of field guns jambed between ricks. These were apparently intended to delay the crossing of the Test at Stockbridge where the bridge had been destroyed—theoretically—if Chetwode's 1st Division attempted to cross there.

In Stockbridge itself we found a few Wessex officers standing by the river bridge who told us that all they knew was that the Royals (the First Royal Dragoons) who formed part of the divisional cavalry of the 1st Division were holding the heights on the opposite side of the valley.

At the cross roads on the Mercian side of the railway bridge we found a young and very intelligent policeman wearing a couple of war medals and directing the traffic, which was quite heavy owing to the number of spectators, in a manner which recalled the beautiful military policemen who used to direct the traffic in the British Army area in France a few miles behind the firing line, with shells buzzing about them all the while, just as imperturbably as if they had been on duty at the bottom of Bond Street. He told us that there were rumours of troops in the direction of Romsey, but a trip of a few miles along that road showed nothing which resembled a war. From the top of a hill thereabouts we could see a number of Wessex aeroplanes working over the country in the direction of Winchester and up towards Whitchurch rather like pointers quartering the ground for birds.

Returning to Stockbridge we branched off on the road to Basingstoke and there on the top of a hill but well concealed among furze bushes were about thirty or forty of the Royals, evidently the extreme advanced troops of the 1st Division.

From this hill it was possible to look over a quarter circle in the direction of Romsey, Winchester and Basingstoke, with a radius of vision of about five miles but there was not a sign anywhere of an army. Only here and there on a sky line



TO ARMS!—A De Havilland 9a of the R.A.F. leaving Kenley Aerodrome for the Front (imitation) with Sir Samuel Hoare, Secretary of State for Air, as passenger.

r on a road one occasionally saw a mounted man who was resumably a soldier.

Once in a while one caught the glint of the sun on a tin at (or battle bowler). Here one may remark in passing that ıe tin hats worn by the Mercian Army glittered like helio-raphs at certain angles and must have helped the Wessex viators quite a lot. Presumably in actual warfare there ould be issued to the troops "paint, drab, dull, hats, tin, or use of."

The Air Force at Work.

While on the top of this hill we saw a really good example f how the Air Force work. Three of the Wessex Grebes ame over and proceeded to sniff round all the woods in the alley below. Hereabouts the woods are as a rule quite large lumps several hundred yards in length and breadth. The ıethod of the R.A.F. seemed to be to dive in line at the orner of a wood and then fly round it a few feet off the round with the wing-tips scraping round the trees at the orners very much as in the old days at Hendon the racing ıachines used to scrape round the pylons at the corners of ıe course.

Every now and then one heard the rattle of machine-guns, ıdicating either that the machines were firing at troops nder the trees or that concealed troops were answering from ıe ground.

After dealing faithfully with the woods in the valley the ıachines wheeled in our direction and apparently spotted ıe cavalry in the scrub on the top of our hill. They proceeded o give us a very pretty exhibition of what is officially con-our-fighting but is more commonly called "ground-raffing." Each machine in turn dived onto our hilltop, ery much as the machines of the same squadron dived onto ıe unfortunate tank at the R.A.F. Pageant—engines full out ıd machine-guns blazing in quite a convincing way. It was very pretty exhibition but it showed one for the first time ow extraordinarily ineffective ground-straffing must be when ttempted with single-seat fighters of the existing type.

Ground-Straffing.

When the machine dives the bullets from the fixed machine-uns plug almost vertically into the ground. For a fraction f a second, as the machine flattens out at the bottom of a ive, they are passing along the ground at a fairly acute angle ıd then, as the machine zooms on its upward path, if the uns are still firing, the bullets merely spray the circum-nbient air. At a rough guess one would say that the actual anger area on the ground is a space about 25 yards long ıd about two feet wide. Which, as our old friend Euclid sed to say, is absurd.

Furthermore it struck one that as the machine dives and s it zooms up again it offers quite a nice mark for a skilled ame shot on the ground. It might be a trifle hard to hit vital spot with a rifle, but a good machine-gunner ought to e able to make a hash of it. And there are possibilities in special anti-aircraft gun more or less of the double-barrelled ıot-gun species.

Anti-Aeroplane Guns.

During the War 1914-18 a very keen game shot raised pre-sely this subject in relation to ground-straffing aeroplanes. le pointed out that a rifle bullet, whether fired from a rifle r a machine-gun, will make a clean hole through a strut or ı engine-bearer without doing any serious damage.

He recalled that when he particularly wanted to plug a rge hole in something and had not an elephant-gun handy e had been in the habit of using a buckshot cartridge in a ıot-gun and nicking the cartridge case round with a knife ıst where the charge of shot joined the powder charge. The sult was that when the gun was fired the top of the cart-dge-case came away bodily with the shot and held the shot gether till it actually hit something. Then the thing would ırst like a shell and make a hole into which you could put ur fist. It might be worth while to try some experiments ith a development of such a weapon on the structure of some our old aeroplanes.

When one remembers how much trench-straffing was done ıring the War and how much more ground-straffing (or ntour-fighting) is likely to be done in the future, because the next war we shall have to engage in open fighting, is rather peculiar that so little attention has been given special ground-straffing aeroplanes either in offence or de-nce.

Special Types.

Some time in 1918 the Sopwith Company produced the Sop-ith Salamander, which was armoured underneath to protect e pilot and power plant against rifle fire from the ground ıd had guns so arranged that they could be fired downwards a suitable angle into the trenches while the machine was ying level.

In 1921 the American branch of the Junkers Company, ıich was known as the J.L. (John Larsen) Aircraft Corpora-on, produced a special "ground attack" aeroplane with a Liberty engine and mounting 30 Thompson guns. This machine was practically the Junkers cabin monoplane of the period with its vulnerable portion covered with half-inch armour plating and the cabin filled with machine-guns. Twelve guns were located immediately behind the pilot's cockpit with all its guns pointing forward. And a defensive gunner had a couple of swivel guns to protect the machine against attack from the air. The after battery of twenty guns had six guns pointing directly downwards and the rest trained slightly aft. The batteries were arranged so that the whole lot could blow off together or half of them could be fired at a time.

In 1921 the U.S. Army experimental station at McCook Field produced a modified ground-straffer, the G.A.X. twin-engined triplane, which mounted six Lewis guns firing downwards and a 37 millimetre (1½-inch) semi-automatic, firing a small shell, besides three Lewis guns firing upwards for self-defence. This machine had quarter-inch armour.

One feels that both ideas was rather overdoing it in that an aeroplane capable of carrying 30 machine-guns with 300 rounds of ammunition for each gun would have to be rather a large and cumbersome thing and consequently easy to hit.

Probably four small fast machines each carrying six machine-guns would in practice be more effective and more economical in casualties in the end.

Certainly for open fighting on Central European plains and so forth an aeroplane which would fly at high speed close to the ground would be less liable to be hit than one which had to dive down and zoom up again, offering a reasonably easy mark from a point dead ahead or dead astern in each case.

One offers these remarks with due deference for the consideration of the authorities on air fighting at the Air Ministry.

Reconnaissance Problems.

Another matter which one offers for consideration as the result of watching these machines at work is the whole question of aeroplane scouting. Naturally we do need high-flying reconnaissance machines in order to watch movements of troops in the enemy's back areas along the roads and railways. One may assume fairly safely that such reconnaissance will be almost entirely photographic and that we shall no longer rely on the guess-work of a more or less trained observer to tell us how many lorries there are on a certain road or how many trains there are at a certain junction or on a certain railway line by day or night.

With long-range lenses and powerful parachute flares we should be able to get that information with photographic accuracy from heights between 15,000 and 20,000 feet where the reconnaissance machine would be fairly safe against shell-fire from the ground. But reconnaissance at anything between 5,000 and 10,000 feet, except when the visibility is bad, is not likely to be popular in the next war. In that region aeroplanes are comparatively easy marks for the improved anti-aircraft artillery of to-day and any attempt at reconnaissance of that sort will merely be wasting men and machines.

In the enemy's forward areas, especially in country which is anything like those Hampshire and Wiltshire downs, reconnaissance from any height is almost useless. With troops concealed under the trees there is no way of finding them except to go down to the tree level and look for them.

One has had no opportunity of discussing this question with any of the Air Force people who were at work on manœuvres but one will be very much surprised if it is not found ultimately that the most valuable information about the presence of troops in the forward areas was given by the single-seat fighters and not by the high-flying reconnaissance machines.

The Real Scout.

Which brings one back to an old theory of one's own which has never been seriously disputed. That is that the real air scout of the future is going to be a terrifically fast single-seater, or at most a two-seater, which will depend for its results on its speed and nothing else.

A small high-speed single-seater can dash about near the ground and look for troops on their own level and achieve results which cannot possibly be got in any other way. A 200-mile-an-hour aeroplane 20 or 30 feet off the ground is much less likely to be hit than is a 100-mile-an-hour aeroplane at 5,000 feet. And the crew of the latter machine will not see anything like as much of the enemy as will the pilot of the former.

In the very earliest days of aeroplanes when we first began to consider them seriously for war purposes the small fast single-seaters, such as the original Bristol Bullet and the original Sopwith Tabloid, were intended to be used as scouts and were called scouts. But the one thing for which our scouts were never used was scouting. The reason was that we had so few good pilots who knew enough about military affairs to be trustworthy as scouts.

Consequently the scouting was done by military officers carried in slow two-seaters by civilian pilots, many of whom

remained essentially civilians till the end of the War although they held the King's Commission. And even to-day quite a number of brilliant single-seat fighter pilots are civilians so far as military knowledge goes.

Consequently our scout machines when they were produced in quantity were used in single-seat fighting squadrons, although they were still called scouts. And even to-day one finds in reports on the flying ability of young officers in the R.A.F. such phrases as "would make a good scout pilot," although the probability is that the young gentleman has not the most remote idea of scouting.

Long-Range Reconnaissance.

Apart altogether from this very close-range scouting at or about ground level there is also the question of real long-range high-speed scouting. We can easily build machines which will do 250 miles an hour for a couple of hours at a stretch and carry a man and a camera. A machine of that kind can go out and get close-up photographs of troop and train movements 150 or 200 miles behind the enemy's front and get back safely with them, thanks to its enormous speed, in less time than an ordinary reconnaissance machine would take to get half-way to the same point, fighting off attacking machines and dodging anti-aircraft guns.

Of course the slower machine could send back a certain amount of information by wireless if it were not destroyed on the way there. But that information would be nothing like as valuable as actual photographs would be.

Naturally there is the objection that every pilot cannot fly a 250-mile-an-hour machine and that still fewer pilots can land such a machine safely. But one seems to remember that in the old days of open warfare which ranged in South Africa, as Kipling says, over "eleven degrees of a bare brown continent" certain men were specially selected as scouts for their particular ability in recognising enemy troops, in concealing themselves when in enemy country, and in giving a lucid account of what they had seen while there. Quite a small number of them sufficed for the needs of what used to be called an army in those days. And there seems no good reason why the Air Force should not select and train a reasonable number of pilots to be real scouts in the next war.

Celebrities.

After watching this little exhibition of ground-straffing we turned North-West back to the valley of the Test and returned to Stockbridge just in time to meet all the illustrious French visitors arriving from Whitchurch.

The most easily identifiable perhaps was General Weygand, who during the War 1914-18 was Marshal Foch's right-hand man. It was he in fact who did all the detail organisation of the Marshal's grandiose schemes, and he was rather the junior member of a partnership than merely an assistant. One might say that he was a kind of Mason to Foch's Fortnum or a Freebody to Foch's Debenham. General Weygand was with the Princess Beatrice and Lord Methuen, very straight and soldierly despite his eighty years and the limp left with him as a legacy of Delarey's bullet in South Africa.

Marshal Franchet d'Esperey arrived a few minutes later with General Clive and a number of French officers. He returned impressively the smart salute of our young friend the policeman at the cross-roads. The French visitors were taken into Stockbridge.

An Impasse.

Then we gathered from the gossip of various observing officers, umpires and so forth that Chetwode's expected advance was being delayed for several hours. Nobody knew precisely what the notion was but presumably it was due to the fact that all the bridges across the Test had been theoretically blown up by Godley's retreating forces, and therefore before Chetwode's men could do anything the umpires would have to hold him up for such a time as it would take his imaginary engineers to build imaginary temporary bridges across the Test.

A similar situation on the previous day had produced about the best story of the manœuvres. A wet and weary soldier was dragging two reluctant pack-mules across a bridge in the pouring rain when he was held up by an umpire who, pointing to the notice on the bridge, said, "Look there, my man. Can't you see that this bridge has been blown up?" And the soldier replied "Yes, sir. And can't you see that I am swimming this blank river with these two blank mules?"

Manœuvres are certainly designed to give the imagination of the Army full play. But though the imagination of the High Commands may be exercised by moving troops in mass the private soldier and the subaltern officer needs a lot of imagination if he is to be persuaded to stick to the rules of the game.

Imagination.

This need for imagination, and the lack of it, gives rise to most of the grumbling or jeering which one finds among a certain type of junior officer of all Services on manœuvres as well as among the less intelligent writers on the subject. They are apt to forget that manœuvres on a grand scale are not intended to be exercises in minor tactics for junior officers and other ranks but are exercises for the higher grades of the Staff who will have to handle them and their units in real war. The Staff can get just as much mental exercise out of a skeleton company composed of one fat sergeant with a flag as they can get out of a full company with tin hats and full war equipment.

The junior officers and men, and to a certain extent the R.A.F. units co-operating with the Armies, had had all the exercises in minor tactics during the brigade and division manœuvres for a month beforehand. Consequently last week the umpires were only concerned with the general movements of troops. But apparently the various units were used at something like full war strength so as to give the lower grades of the Staff a better notion of what they had to handle.

Even so the problems presented were very different from what they would be in real war. As Sir William Roberts points out in one of his articles a full division on the march with its transport occupies some fifteen miles of road. On manœuvres nothing like this space is used because so many of the accessories of war are absent.

Also as Sir William has indicated, there were no long columns of hospital transport going up to the line empty and coming down full.

In fact during the day there was very little movement on the roads at all, whereas in real war, aircraft or no aircraft, the transport would have to move by day even though the fighting troops might not. And no doubt in the next war even though the fighting troops may be concealed, the opposing Staff will be able to get a very good idea of their number and position from the quantity and quality of the transport columns which serve them.

From Stockbridge, after the celebrities had departed, we made a journey along the Winchester road and all that could be seen on a couple of miles of road was a little train of half-a-dozen field kitchens. But less than a mile from Stockbridge, over the brow of the first hill, were hundreds of cavalry sleeping among their horses under the trees of the woods on each side of the road. Even on the road they were invisible till one came alongside them, and they must have been absolutely unspottable from the air.

For three or four miles along that road there were no other troops to be seen, so we turned back by Crawley towards Andover. At the end of a stretch of the old Roman Road where it disappears over the hills at Newton Down on the Mercian side of the Test, we found small detachments of Chetwode's infantry with machine-guns watching the valley. But when we crossed the river at Wherwell there was no sign of Godley's troops. And at Andover we learned that the whole of Godley's force was withdrawing to its second defensive position along the valley of the Avon from Upavon southward.

After that we saw no more troops on the way to Newbury for apparently Chetwode's right wing had not reached the area. And even the aeroplanes of both Armies seemed to have gone home to roost for the night.

Mechanical Transport.

In Andover we were told that the experiment of transporting the infantry of Godley's left wing by motor-bus on the Tuesday had been a failure. As one critic remarked "They bussed them for four miles and then made them walk ten."

Those distances may not be accurate but that was the general idea. At any rate the infantry, having been transported mechanically for a certain number of miles, were debussed long before they need have been, evidently because the scouts, aerial and on the ground, were ignorant of the precise whereabouts of Chetwode's right wing. So the infantry had to march miles in the mud before they could make contact with the enemy.

One infantry colonel complained bitterly that two of his best horses, whether his own or belonging to his company commanders one did not learn, were thrown down by the jolting of the vehicle in which they were being conveyed and were trodden on by two others in the same vehicle. Evidently there is a need for proper horse-boxes if we are going to mechanicalise the movements of our infantry.

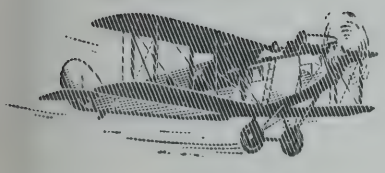
The 20 Mile Fallacy.

On the whole, taking at large the views of those whose opinions are best worth having, these manœuvres seem to have shown that warfare cannot be mechanicalised on a 20-mile an hour basis. Tanks and armoured cars and lorries broke down as irritatingly as they did during the War 1914-18.

One feels inclined to emphasise this point because the officers and men of the R.A.F., belonging as they do to a service which depends essentially on the perfection of mechanical propulsion, may be themselves inclined to be over enthusiastic about mechanicalised warfare.

The writer of a particularly convincing leader in *The Times* of September 26 says

> Transport moves smoothly along excellent roads maintained by



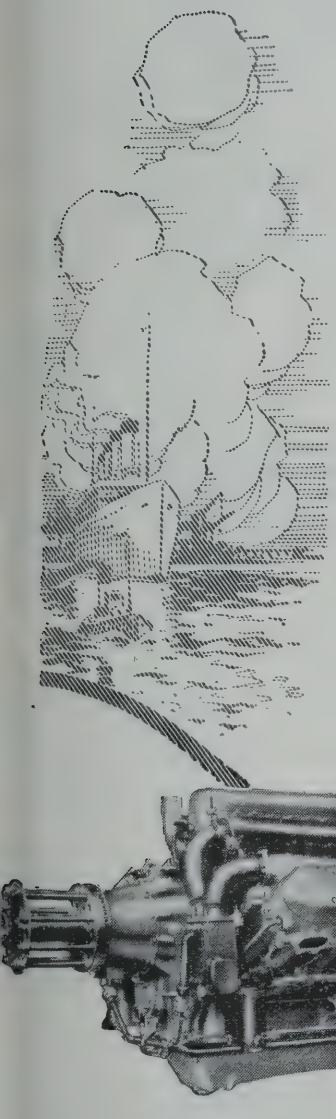
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"It has done splendid work for the R.A.F. and for Civil Aviation both at home and abroad, and practically every foreign nation which professes to have an air force regards the Napier Lion as its standard of excellence."

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much harassed Ministry of Transport, and on these roads also are moved large bodies of infantry in motor-lorries at speeds unheard of in past wars. But in real war there is no assurance that roads would continue to exist in the area of operations, and in any case the best of highways can be blocked to motor transport by the digging of a few well-designed and well-placed trenches at turnings, or even on straight stretches. In that event the Army would be reduced in a very short time after the opening of hostilities from its new "twenty miles an hour" to the old denominator of two and a-half miles an hour.

Again, since there are no casualties in manœuvres, there are no long trains of wounded further to block passage to the front. Nor does the tank supply an immediate help in these matters. It is true that caterpillar traction makes light work of trenches and of most natural obstacles, and that in itself a tank supplies protection in some degree for those it carries. But it cannot conquer the mud of a battlefield when the elements take a share in hostilities, nor is it yet clear to what degree anti-tank tactics have improved.

There is the possibility that as they increase in efficiency they will also increase their armament and will carry guns of considerable power and range. Will tanks then engage at long ranges in action against other tanks under conditions approximating in some degree to those of naval warfare? And will the anti-tank gun, specially designed and specially manned, be as effective against tanks as are land guns of position against ships at sea?

These are some of the points which must be considered both by the friends and by the foes of the tank.

Convinced as one is that the next big land war will be fought over the plains of Central Europe one is equally convinced that mechanical transport such as exists at present will not prove the immense success which its advocates would have us believe. Doubtless tanks will be useful but probably they will be less useful than they might have been if they had been properly used in France during the Battle of the Somme in 1916.

Considering that the general arrangement scheme for the design of the tanks and for their tactical operation was brought to this office by the real inventor in October, 1914, they could have been properly fit for use in the Summer of 1916. And they would have been but for the intrigue and trickery which hindered their progress while various persons were trying to acquire for themselves the control of the tanks in view of the credit which would attach to them when they went into action. The result is that the tank is still far from the state of perfection in which it should be.

The Old Army Again.

The one thing which did show up on our manœuvres was the fact that the British soldier and the British horse are as good as ever they were. The infantry tramped through the wet and cursed and grumbled and were as grimly humorous as they were in France and the other war areas. And the British cavalryman showed his usual ability as a horsemaster.

After all the trials of that diluvial Tuesday the horses of the cavalry looked as fit and as spotless as if they had just come out of their stables. In fact one's companion remarked that the cavalry equipment was too well kept, because the shine of saddlery and the glitter of bits and bridles and chains made things too easy for the air scouts, unless th horses were right inside the woods.

The R.A.F.

As to the R.A.F. itself one cannot do better than quot *The Times* again. The leader-writer says

Aircraft in manœuvres have proved many things. A great improve ment has been shown in the accuracy of the reconnaissance report submitted by air observers. It is true that owing to the weathe most reconnaissance flights were made at heights which in actua war would have been far too low for the avoidance of almost pro hibitive casualties; but accuracy at low altitudes implies that ther will also be accuracy at great heights, even though the informatio obtained will be less.

This improvement reflects very great credit not only on the officer of Royal Air Force squadrons cooperating with the Army, but als on those soldiers with whom they have had to work. It is evidenc of the interdependent spirit of friendship, without which no arme force can hope to attain victory.

It has also been shown, even in the absence of counter-aircraft attack that aircraft can be used with deadly effect against transport column and against congested back areas. Their use in shock action agains troops has also been so successful that very definite steps mus clearly be made to improve infantry methods of anti-aircraft defence both with rifles and with machine-guns.

Co-operation.

There is much satisfaction in learning from various quarter that the Air Force and the Army worked so cordially in co operation. The Army officer to-day is a worthy successor t the officers of the old Regular Army who died so well i Flanders. As the same writer in *The Times* says

The Army of to-day has largely recovered that efficiency whic distinguished the Expeditionary Force of the days immediately pre ceeding the Great War.

The officers of the Air Force will do well to learn all the can about the Army and its ways. For to quote *The Time* again

In war victory lies far more in unity of action than in the mer use of machinery how ever well designed that machinery may be.

In the next war although the Air Force will be the firs striking force the ultimate decision of that war will rest a ever in the past with the armed infantryman standing o his own feet in the enemy's country.

The Air Force may even win the war. Mounted men an men conveyed by mechanical means on the ground may d most of the fighting. But when the war is won the infantry men will have to keep it won, assisted perhaps by a goodl contingent of Air Force to prove the efficacy of Sir Samue Hoare's motto "Control Without Occupation," so far as th greater area of the enemy's country will be concerned.

Therefore one advises all those young officers of the R.A.F who hope for promotion and distinction in the next war t study the ways of the Army and to study the unalterabl principles of war so that in due course they may carry int air war those traditions of victory which have been hande down to them by the British Army.—C. G. G.

THE DEPARTURE OF THE SCHNEIDER TROPHY TEAM.

The British Team which is going to Baltimore to compete for the Schneider Trophy on Oct. 23 and 24 left the King George V Dock on the Atlantic Transport Company's boat the *Minnewaska* at 5.30 p.m. on Saturday afternoon. Prior to their departure a reception was held on the ship.

The Schneider Trophy Competition has at last taken hold of the public imagination. All the newspapers for the past fortnight or so have been full of Schneider Trophy news and the way in which each paper has been trying to get special little bits of exclusive information and considering thereby that they have scored over their rivals, shows that they really think that the public wishes to know all about the race. This is a distinctly good sign.

Presumably, if we win the Trophy this year the Press will hail it as a great score for British aircraft and if the race is held here next year and the Royal Aero Club handle it properly it should be made to attract a large crowd of people.

On the other hand, if after having done everything possible to build racing machines we are again out-speeded by America this year the public will want to know how it is that America leads us. And then, perhaps, we shall make an even more serious effort next year to regain the Cup. In fact, taking it all round, the Schneider Trophy is the best bit of aviation propaganda we have had for a long time. Apart from which it is a thoroughly sporting venture.

Therefore it was all the more surprising to see how the Aircraft Industry as a whole omitted to go down to see the Team off. In fact, outside the competing firms, the Supermarine Company, the Gloucestershire Company and the Napier Company, the only heads of constructing firms who were present were Mr. Handley Page, and Mr. A. V. Roe and Mr. John Lord of A. V. Roe and Co.

So keen was Mr. A. V. Roe on the event that he suddenly decided that he would go over also. The day before he ran up an agency—"chiefly," he said, "out of curiosity"—an asked them if there was a vacant berth on the *Minnewaska* They told him that they would ring up in half an hour. I half an hour they telephoned and told him that there was vacant berth and so he took it and sailed with the Team "After all," he said, "what else could I do when I knew tha there was a vacant berth?"

The Air Ministry was well represented by Sir Geoffre Salmond, Major Buchanan, Mr. R. J. Goodman Crouch an Mr. C. P. Robertson. Lt.-Col. Moore-Brabazon, Parliamentar Secretary to the Ministry of Transport, attended in his capa city as Vice-Chairman of the Royal Aero Club. Sq. Commdr Bird and Capt. Leigh Mossley represented the Supermarin Aviation Works Ltd. Mr. Burroughes was there for th Gloucestershire Aircraft Co. Ltd., Mr. Winter went to bi farewell to the Napier team.

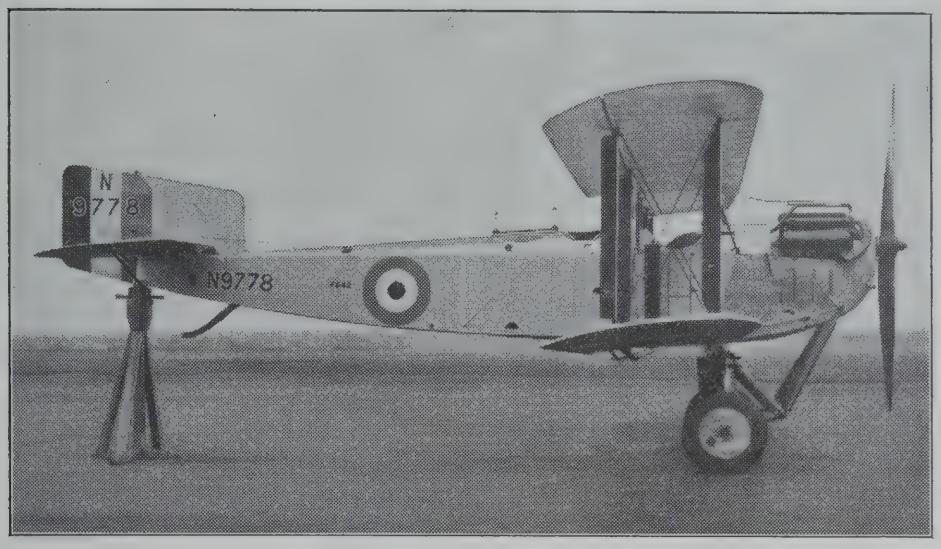
Mr. Wallace Barr of Cellon Dope Ltd. gave up his gol on Saturday afternoon to see the team off, although his firm had no personal interest in the machines.

Mr Hutchinson of Titanine Dope fame, who produced th blue and white colour scheme for the Gloster machines, an his wife, were there, as was Mr. Lamplough of the Union Insurance Society of Canton Ltd. Mr. Shaw of Shell of cours was there, and Major Davidson, the American Army Ai Attaché and his wife were also present. Unfortunately, Com mander Burg, the American Naval Air Attaché had to go o to Paris on business and so was unable to attend.

Sir Charles Wakefield sent a cable regretting that a ver important engagement at Hythe alone prevented him fro being present.

Apart from the above, about a hundred of the much maligned members of the Royal Aero Club gave up thei

R·A·F· TYPES — No 5.



THE FAIREY III.D. AEROPLANE.

With the exception of the wheel type undercarriage, which enables it to alight on land or on a ship's deck, the Fairey III.D. Aeroplane is in all essential details the same as the III.D Seaplane.

This wheel undercarriage is interchangeable with the float undercarriage, therefore the machine can be converted to a Seaplane or vice versa at a few hours' notice.

FAIREY AIRCRAFT

THE FAIREY AVIATION COMPANY, LTD.

HAYES, MIDDLESEX. HAMBLE, Nr. SOUTHAMPTON.



OUR FOURTH LINE OF DEFENCE.—The first sea-going photograph published of the famous first Gloster-Napier co bination, the Bamel, as now fitted with floats. She has gone to Baltimore with the Schneider Trophy team, where s will be used as a practice machine and also as our fourth string if two of the others are for any reason put out of acti before the Schneider Trophy Competition. Mr. Broad is seen in the cockpit.

Saturday afternoon to be present on board to give the Team a good send-off. One was glad to see that so many members took such a real interest in the event.

So far as one could see there was nobody representing the S.B.A.C., and apart from the two mentioned, not one of the big aircraft firms were represented.

At 16.00 hrs. the party adjourned to the saloon and Colonel Moore-Brabazon proceeded to toast the Team. He said that this was an extremely important occasion as it was the first time that we have made a really serious effort since 1922 to regain the Trophy. He wished the Team collectively and individually every success on behalf of the Royal Aero Club and the Government of which he was a member. He thanked Mr. Horncastle, the Chairman of the Atlantic Transport Ltd., who was present, for the very generous assistance—taking the team to the States and back free gratis and for nothing.

Sir Geoffrey Salmond seconded his remarks and said that he thought we had got as good pilots as possible for the job in hand. On behalf of the Research Department he handed to Capt. Wilson a long tubular parcel which turned out to be a sort of illuminated address with the address replaced by photographs of the competing machines superscribed "The hope of the A.I.D.," with the motto placed over it "There is many a slip twixt cup and lip," but with numerous exhortations not to allow the slip to occur. This was subsequently hung up in a prominent place in the lounge.

Squadron Commander Bird on behalf of the constructing firms said that he did not mind which machine won so long as it was one of the British Team.

Mr. Henri Biard was with great difficulty persuaded to say a few words so he rose and said that he did not see why he should say anything until he had done something. He thanked everybody for coming and then sat down after h ing been on his legs for nearly five seconds. This is belie to be his record speech.

During all this time there was some anxiety about Mr. Br as so far he was the only one of the Team who had not tur up. After the reception everybody adjourned to the top d where photographs of the still and movie variety were ta of the personnel of the Team and Mr. Broad arrived h way through this proceeding when he was at once se and photographed. Much amusement was caused by efforts to try and get Mr. Henri Biard to smile.

Mr. Harold Perrin acted as movie producer. He can have had so much exercise since the last Aerial Derby. I dentally, he showed that he had all the vocal qualities wh go to make a big movie producer.

After this everybody shook the hands of all the Te several times over and wished them the best of luck. A which we all returned to London and the *Minnewaska* for the Great Occasion.—G. D.

ANOTHER FRENCH FAILURE.

On Sept. 25, MM. Tarascon and Favreau left Etampes an attempt to break the duration record. The machine t were using was the Potez aeroplane, fitted with a 400 h Jupiter engine, on which MM. Coli and Tarascon were to tempt to fly from Paris to New York.

After completing thirteen laps of the course Etampe Orleans—Chartres, they ran into bad weather. In high w rain and darkness the machine ran into trees at St. Luc near Chartres, crashed, and caught fire.

The two occupants escaped serious injury, but the mach was completely destroyed.



THE HOLDERS.—One of the two new Curtiss R.3.C.1 racers with a 619 h.p. Curtiss V 1,400 engine. These machin will be fitted with floats and entered as the first two strings of the U.S. Navy team in the Schneider Trophy Compe tion. As a land machine it has averaged 282 miles per hour over a course of one kilometre. On one run over the cou (alleged to be in a downward direction, which may mean either down wind or on a slope) a speed of 302 miles per ho was reached, which is supposed to be the first time 5 miles a minute has been exceeded. The pilot, Lt. Alford Willian U.S.N., is here seen getting into his parachute. The effect of jumping with a parachute at high speed should be interestin

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THE ROYAL AIR FORCE.

The London Gazette.

Sept. 25.

GENERAL DUTIES BRANCH.—Flt. Lt. G. C. Rhodes is granted a perm. comn. in the rank stated (Sept. 23).

The following are granted S.S. comns. as Flg. Offs. with effect from, and with seniority of, Sept. 14:—H. N. Hawker, C. R. Mason.

The following are granted S.S. comns. in the ranks stated, with effect from, and with seniority of, Sept. 12:—FLG. OFF. (or seven years on the active list).—J. St. C. Arbuthnott (Lt., Indian Army, retd.). PLT. OFFS (for five years on the active list).—A. W. L. C. Allen, H. T. Andrews, L. C. Barling, J. W. Bayes, G. Bradbury, A. M. N. David, W. G. du Bédat, T. O'N. East, D. C. Field, C. S. Horne, H. A. Howes, W. F. Lovering, C. R. McEvoy, R. C. H. Monk, C. V. Mossman, E. G. L. Russell, A. W. Shaw, W. H. Shorter, A. A. Smart, E. A. Swiss, A. E. Taylor, E. M. Thompson, F. B. G. Walker.

Lt. P. N. R. Hallward, Border Regt., is granted a temp. comn. as a Flg. Off. on seconding for four years' duty, with the R.A.F. (Sept. 12).

The following are transferred to the Reserve, Class A:—FLT. LT. C. F. Briggs (Sept. 20); FLG. OFF. T. N. Stack (Sept. 21).

FLG. OFF. L. Hamilton, M.B.E., D.F.C., resigns has perm-comn. (Sept. 19); FLG. OFF. A. Malone resigns his S.S. comn. (Sept. 23).

The following relinquish their S.S. comns, on account of ill-health (Sept. 23):—Flg. Off. F. Lines, Plt. Off. on probation D. M. Tyringham.

Plt. Off. C. A. E. S. Kregor is removed from the service (Sept. 26). The notice in the *Gazette* of May 19, 1925, regarding Lt. J. E. Hewitt, R.A.N., is cancelled.

ACCOUNTANT BRANCH.—Flg. Off. A. B. Holt is dismissed the service by sentence of General Court-martial (Aug. 17).

MEDICAL BRANCH.—The following Flg. Offs. are granted perm. comns. in the rank stated (Sept. 23):—S. G. Gilmore, R. H. Stanbridge.

RESERVE OF AIR FORCE OFFICERS.—C. R. McMullin is granted a comn. in Class A, General Duties Branch, as a Flg. Off. on probation (Sept. 22). The following Flg. Offs. relinquish their commissions on account of ill-health (Sept. 23):—G. G. McHardy, A. E. H. Roberts.

Appointments.

Week ending Sept. 28.

GENERAL DUTIES BRANCH.—Group Captains C. T. Maclean, D.S.O., M.C., to R.A.F. Depot pending posting overseas, 16/10. C. E. H. Rathborne, D.S.O., to Station Commandant, Basrah, pending taking over command, 22/9.

Wing Commanders R. J. Bone, C.B.E., D.S.O., to Aircraft Depot, India, pending taking over command, 16/9. R. H. Verney, O.B.E., to H.Q., India, for technical staff duties, 16/9. N. J. Gill, C.B.E., M.C., to H.Q., Iraq, for technical staff duties, 22/9. V. O. Rees, O.B.E., to Aircraft Depot, Iraq, pending taking over command, 22/9.

Squadron Leaders N. C. Spratt, O.B.E., to Aircraft Depot, Iraq, 22/9. C. J. Mackay, M.C., D.F.C., and F. R. Alford, M.C., to H.Q., Iraq, 22/9. E. D. Johnson, A.F.C., to No. 55 Sqdn., Iraq, 22/9. E. M. Pollard, to No. 6 Arm. Car Coy., Iraq, 22/9. A. S. Maskell, to Station Commandant, Basrah, 22/9. A. J. Currie, to H.Q., Palestine Command, 24/8.

Flight Lieutenants S. N. Cole, H. J. Roach, A.F.C., G. F. Smylie, D.S.C., S. D. Culley, D.S.O., L. G. Harvey, J. C. Foden, A.F.C., H. I. T. Beardsworth, S. M. Park, and D. L. Evans, M.C., D.F.C., to I.A.A.D., Henlow, 19/9. Hon. J. H. B. Rodney, M.C., to H.Q., Special Reserve and Auxiliary Air Force, 1/10. E. J. Kingston-McCloughry, D.S.O., D.F.C., to Air Ministry, 23/9. The following are posted with effect from 22/9:—E. R. Whitehouse, to No. 45 Sqdn., Iraq. A. S. Ellerton, O.B.E., and A. A. Ward, to No. 6 Arm. Car Coy., Iraq. R. S. Sugden, A.F.C., and G. E. Ranson, to No. 55 Sqdn., Iraq. N. V. Wrigley and L. H. Cockey, to H.Q., Iraq. S. S. Benson, A.F.C., W. V. Simons and T. C. Traill, D.F.C., to Aircraft Depot, Iraq. E. K. D. Robertson, A.F.C., to No. 84 Sqdn., Iraq. F. C. B. Savile, to No. 70 Sqdn., Iraq. E. P. Mackay, to No. 8 Sqdn., Iraq. M. M. Freehill, D.F.C., to No. 5 Arm. Car Coy., Iraq.

Flying Officers H. C. Pyper, F. Porter and C. D. Adams, to H.Q. Iraq. R. de L. Stedman, to No. 5 Arm. Car Coy., Iraq. S. H. Ward to Stores Depot, Iraq. H. J. Gemmel, G. H. Jennings-Bramley and H. T. R. Cripps, to No. 6 Sqdn., Iraq. T. C. Penna, F. W. Sinclair D.F.C., A. M. Webster, and J. W. White, to Aircraft Depot, Iraq. W. Dickison, D.S.M., to Inland Water Transport, Iraq. J. E. Buckland to No. 4 Arm. Car Coy., Iraq. A. Jerrard, V.C., E. J. Ffoulkes-Jones and V. Croome, to I.A.A.D., Henlow, 19/9. P. N. R. Hallward, t No. 5 F.T.S., Sealand, on appointment to Temp. Comn. on bein seconded from Army, 12/9. E. H. Rundle, to Air Ministry, 5/ H. H. Storrs, to No. 24 Sqdn., Kenley, 17/9. J. H. Page, to No. F.T.S., Digby, 21/9. (Hon. Flt. Lt.) A. E. G. Forrest, to School T.T. (Men), Manston, 21/9. M. W. J. Boxall and L. S. Potter, t No. 45 Sqdn., Iraq, 22/9. E. B. Forster and R. B. H. Jackson, t No. 55 Sqdn., Iraq., 22/9. (Hon. Flt. Lt.) W. F. Humphery and J. A Moore, to No. 30 Sqdn., Iraq, 22/9. R. S. Barbour, to No. 8 Sqdn Iraq, 22/9. G. S. White, to No. 70 Sqdn., Iraq, 22/9. J. St. C. Arbuth nott, to No. 5 F.T.S., on appointment to a S.S. Comn., 12/9.

Pilot Officers J. H. C. Wake, to I.A.A.D., Henlow, 19/9. D. T. H Hooke, to R.A.F. Depot on transfer to Home Estab., 5/9. W. F Gray, to No. 47 Sqdn., Egypt, 5/9. A. J. Thompson, to No. 47 Sqdn Egypt, 31/8. D. L. Kavanagh, J. H. Leach, S. A. Thorn and D. G. F Walker, to No. 5 F.T.S., Sealand, on appointment to S.S. Comns. (o probation), 21/9. J. C. C. Slater, to No. 5 F.T.S., Sealand, on appoin ment to a Perm. Comn., 12/9. N. A. West, to No. 84 Sqdn., Iraq, 22/ W. O. Du Port and S. H. V. Harris, to No. 55 Sqdn., Iraq, 22/ H. R. F. Baxter, to No. 58 Sqdn., Worthy Down, 25/9. C. J. Pavi to remain at R.A.F. Depot. The following Pilot Officers to No. F.T.S., Sealand, on appointment to S.S. Comns., with effect fro 12/9:—A. W. L. C. Allen, H. T. Andrews, L. C. Barling, J. W. Baye G. Bradbury, A. M. N. David, W. G. du Bédat, T. O'N. Eas D. C. Field, C. S. Horne, H. A. Howes, W. F. Lovering, C. V. Mos man, C. R. McEvoy, R. C. H. Monk, E. G. L. Russell, A. W. Shaw W. H. Shorter, A. A. Smart, E. A. Swiss, A. E. Taylor, E. M Thompson, F. B. G. Walker.

MEDICAL BRANCH.—Flight Lieutenants (Hon. Sq. Ldr.) E. Brown, t No. 56 Sqdn., Biggin Hill, 14/9. G. H. H. Maxwell, M.B., to No. F.T.S., Egypt, 28/8.

Flying Officers F. W. Wilson, to A. and A.E.E., Martlesham Heath 19/9. H. G. Maguire, to School of T.T. (Men), Manston, 18/9. A. E Cook, to Research Laboratory and M.O.s' S. of I. on appointment t a S.S. Comn., for short course, 16/9.

STORES BRANCH.—Flight Lieutenants G. F. Law, to Supply Service (Petrol Dump), Iraq, 4/9. G. Oliver, to R.A.F. Depot on transfer t Home Estab., 31/8. W. L. Shaw, M.B.E., to A. and G.S., Eastchurch 19/10. L. A. Lavender, to remain at I.A.A.D., Henlow. A. W. Smith to H.Q., Iraq, 22/9. F. Anderson, to Aircraft Depot, Iraq, 22/9. T. E Drowley, to Station Commandant, Basrah, 22/9.

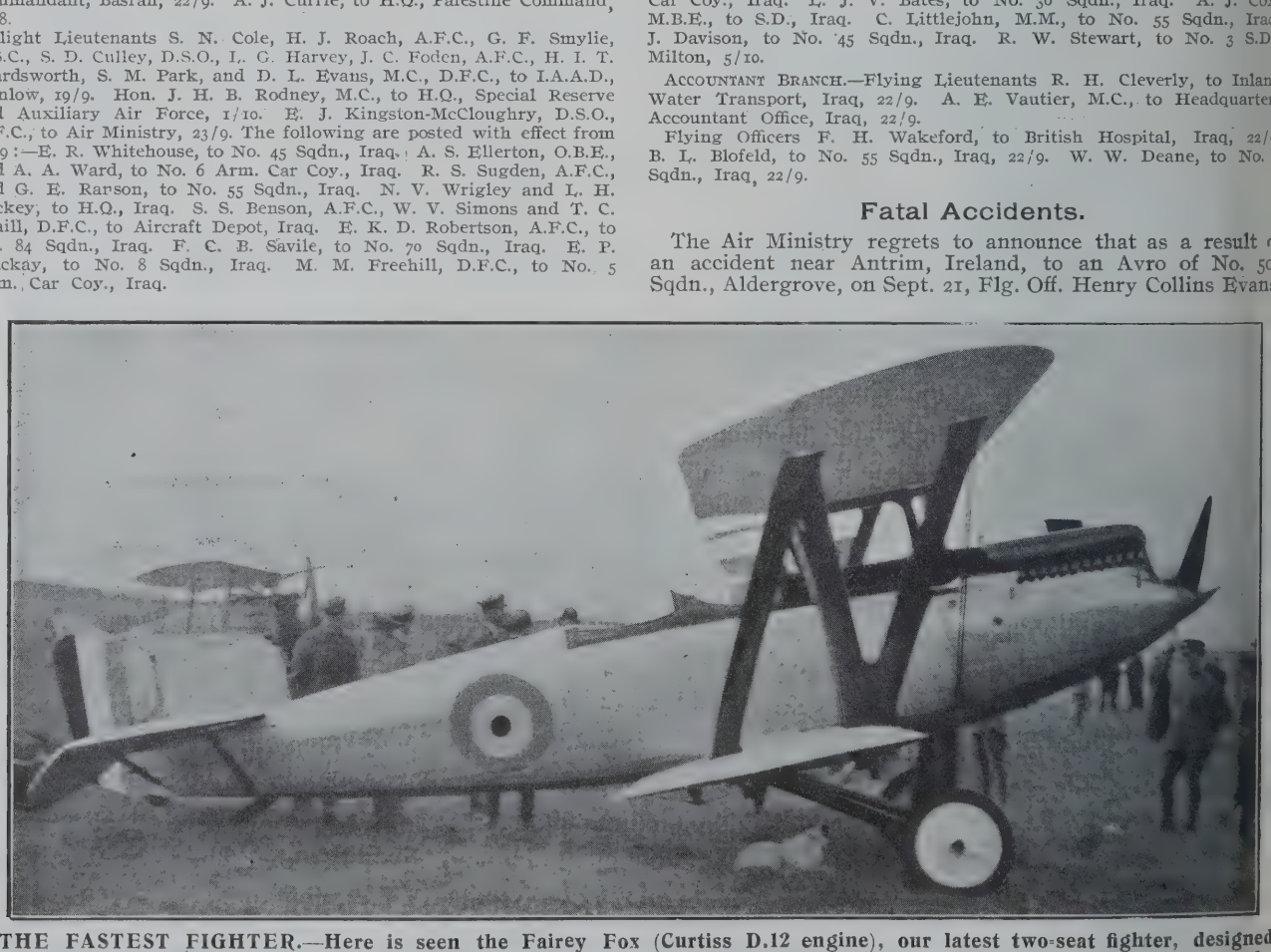
Flying Officers (with effect from 22/9):—W. H. Harrison and G. Maygothling, to Aircraft Depot, Iraq. J. R. Gardiner, to No. 4 Arm Car Coy., Iraq. L. J. V. Bates, to No. 30 Sqdn., Iraq. A. J. Cox M.B.E., to S.D., Iraq. C. Littlejohn, M.M., to No. 55 Sqdn., Iraq J. Davison, to No. 45 Sqdn., Iraq. R. W. Stewart, to No. 3 S.D Milton, 5/10.

ACCOUNTANT BRANCH.—Flying Lieutenants R. H. Cleverly, to Inland Water Transport, Iraq, 22/9. A. E. Vautier, M.C., to Headquarter Accountant Office, Iraq, 22/9.

Flying Officers F. H. Wakeford, to British Hospital, Iraq, 22/ B. L. Blofeld, to No. 55 Sqdn., Iraq, 22/9. W. W. Deane, to No. Sqdn., Iraq, 22/9.

Fatal Accidents.

The Air Ministry regrets to announce that as a result an accident near Antrim, Ireland, to an Avro of No. 5 Sqdn., Aldergrove, on Sept. 21, Flg. Off. Henry Collins Evan



THE FASTEST FIGHTER.—Here is seen the Fairey Fox (Curtiss D.12 engine), our latest two-seat fighter, designed and built by the Fairey Aviation Co. Ltd. in spite of the opposition of the Air Ministry's self-appointed experts. She is the fastest two-seater in the World.

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Some Successful Flights made with Rolls-Royce Engines:

Across the Atlantic	**1,890 miles**
England to Warsaw	1,050 miles
England to Finland	1,100 miles
England to Constantinople	2,160 miles
England to Sweden (and back)	2,450 miles
England to South Africa	6,281 miles
England to Australia	11,500 miles

These flights were accomplished without any change of engines en route

"The Britannia Trophy, presented by the Royal Aero Club for the best performance in the year, has been awarded for the year 1924 to Wing-Commander Goble and Flight-Lieutenant McIntyre for their flight round Australia in a Rolls-Royce-Fairey."

"Daily Telegraph," March 26th, 1925

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the pilot of the aircraft, died of injuries on admission to hospital.

The Air Ministry regrets to announce that as a result of a collision in the air at Filton Aerodrome, Bristol, between two Bristol Fighter machines of the Civil Flying School, Filton, on Sept. 23, Flg. Off. George William Thorpe, Reserve of Air Force Officers, the pilot of one of the machines, was killed, and Flg. Off. Percival Albert Cox, Reserve of Air Force Officers, the pilot of the other machine, was severely injured and died shortly afterwards.

The Air Ministry regrets to announce that as a result of an accident near Folkestone to a Sopwith Snipe of No. 17 Sqdn., Hawkinge, on Sept. 24, Flt. Lt. Arthur Wilfred Cuddon-Davis, the pilot and sole occupant of the aircraft, was killed.

The Air Ministry regrets to announce that as a result of a collision in the air at Elmdon, near Royston, Cambridgeshire, between two Grebe machines of No. 29 Sqdn., Duxford, on Sept. 25, Flt. Lt. Basil Royston Carter, A.F.C., and No. 402111 Sjt. Thomas James McGrath, the pilots of the two aircraft, were killed.

The Army Senior Officers' Course.

The following officers of the R.A.F. have been appointed to attend the 19th course which opens at the Army Senior Officers' School, Well Marsh, Sheerness, on Sept. 28, and will terminate on Dec. 19: Wing Cdr. the Hon. L. J. E. Twistleton-Wykeham-Fiennes and Sq. Ldr. A. P. V. Daly.

A Flight Out of Egypt.

The Air Ministry announces :—

As foreshadowed by the Secretary of State for Air during the debate on Air Estimates in the House of Commons on Mar. 12, the Air Ministry have made arrangements for the despatch this autumn of a flight of three Service aircraft from No. 47 Squadron of the Royal Air Force stationed at Helwan, from Cairo to Kano, in Nigeria.

The flight is being undertaken for the purpose of gaining experience in long-distance flights over tropical countries where few facilities in the way of the ground organisation required by aircraft exist and with the object of allowing Nigeria to see the capabilities of British Aircraft.

The route to be followed will pass through the Sudan, French Equatorial Africa, and past Lake Chad to Kano, the capital of Nigeria. The places to be visited for refuelling, etc., will be Aswan in Egypt, Khartoum, El Obeid, and El Fasher in the Sudan; Abecher and Fort Lamy, in French Equatorial Africa; Maidugari and Kano in Nigeria.

The flight over French Equatorial Africa has been rendered possible by the courtesy of the French authorities who have kindly assisted in the arrangements made.

The organisation of the flight is being undertaken by Air Vice-Marshal Sir Oliver Swann, K.C.B., C.B.E., the Air Officer Commanding, Middle East. Sq. Ldr. A. Coningham, D.S.O., M.C., D.F.C., will be in command of the flight, which will start about the end of October.

The Fleet Air Arm.

The Times of Sept. 28 states :—

It has been decided that the *Argus*, Capt. S. L. Willis, is to be taken in hand for large repairs at Chatham on Nov. 1. The *Argus* has just been relieved in the Atlantic Fleet by the *Furious*, Capt. J. L. Pearson, C.M.G., which has undergone extensive reconstruction at Devonport, and left there on Sept. 20 for Portsmouth. Of the other large aircraft-carriers, the *Eagle*, Capt. W. M. Kerr, C.B.E., is in the Mediterranean; and the *Hermes*, Capt. C. P. Talbot, D.S.O., has been temporarily transferred from the Mediterranean to China.

R.A.F. Fire-Fighters.

The Times of Mesopotamia of Aug. 30 states that as the result of a series of disastrous fires in Basra, a fund has been opened to purchase a fire-engine.

Describing the outbreak which occurred at Ashar on Aug. 29, *The Times of Mesopotamia* says :—

Always There:—Half-an-hour after their arrival [the police] the Margil Fire Brigade [R.A.F.] came up. They had some six miles to travel to get to the fire; and on arrival, found the creek muddy as ever, and the tide low. The fire-float in coming up to Whiteley Bridge collided with a mahaila which was lying almost across the creek. Fortunately the float escaped injury. On duty were Cpl. May and AC. Nottage, assisted by twelve Persian firemen. They had the fire under control round about 2.30. Nevertheless, there was still grave risk of danger, and both the brigade and the police carried on all night, and were still at work this morning. The fire engine will be working all day to-day, to make sure the fire will not break out afresh.

The Great Yarmouth Dinner.

The Sixth Annual Re-Union Dinner for Officers and ex-Officers who served at the Great Yarmouth Air Station, will be held at the Café Royal on the last Saturday in October (Oct. 31) at 7.30 for 8. Tickets are 15s. 6d. each exclusive of wines. Applications should be made as soon as possible to G. F. H. Bloom, 17, Welbeck Street, W.1.

No. 28 Squadron Old Boys' Association.

A re-union supper of No. 28 Sqdn. Old Boys' Association will be held at the White Horse Restaurant, 100, High Holborn, on Saturday, Oct. 10.

The Association will welcome any former members of the Squadron who care to turn up.

Tickets, 3s. 6d. each, may be obtained from C. T. Hodges, 102, Camden Street, N.W.1.

An Old Cranwellian Association.

A letter appears in the current issue of the R.A.F. Cadet College Magazine, from Mr. G. R. Beamish, suggesting the formation of an Association of Officers who have passed through the Cadet College.

The reasons in favour of such an organisation are summed up under the following headings: (a) It would encourage *esprit de corps*, and serve as a bond between past and present in the growth of the College. (b) It would supply an organisation to collect teams of the past for all sports and games against the present. (c) It would be able to supply news of all ex-Cadets through the pages of the Cadet College Magazine, and (d) that it would accumulate small funds for College reunion purposes.

Officers who passed through Cranwell and are interested in such an organisation, should write to the Secretary, Old Cranwellian Association, c/o the R.A.F. Cadet College Magazine, Cranwell.

One would point out that no such association exists in the Army where nothing is done to differentiate between officers who have passed through Woolwich and Sandhurst and those who have entered through the Militia (or Special Reserve) and the Universities or have risen from the ranks. The wisdom of distinguishing between R.A.F. officers from Cranwell, those who have won permanent Commissioners, and those who hold Short Service Commissions, and those of the Senior Services who hold temporary commissions, seems at any rate open to argument.



CLEANLINESS.—Three-quarter rear view of the Fairey Fox (Curtiss D.12 engine) and the machine in the air.



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Rate of Climb at Ground Level	960 ft./min.	Rate of Climb at Ground Level	550 ft./min.
Service Ceiling	15,000 feet	Service Ceiling	12,000 feet

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THE FAIREY FOX.—Permission has last been given by the Air Ministry publish photographs of the Fair biplane which has been a secret know to everybody but ourselves for the pa nine months or so. The machine h a Curtiss D.12 engine and a Re duralumin airscrew.

The publication of performance figur is strictly prohibited, but rumours ha already appeared in print putting t speed at anything between 160 and 1 miles per hour, so one may assume th the actual speed is of that order.

The machine is called by the A Ministry a "day bomber," but her lin and her speed indicate that she is in fa a two-seat fighter and some thirty forty miles an hour faster than o fastest single-seat "pursuit ship." T hang bombs outside such a craft wou be equivalent to using a cavalry charg as a battery mule.

The Fox was built as a private ente prise by the Fairey Aviation Co. Lt entirely free from the interference of th Air Ministry's "experts" and it ha justified the belief so often expressed i this paper that, given a free hand, th best of our British designers can beat th World's best, for we now have th fastest two-seat fighter.

The Drill Question.

The following letter from an N.C.O. of the R.A.F. deserves the attention of all ranks :—

Sir,—No doubt your letter referring to lack of drill in the junior Service has by now been read and seriously discussed in Officers' Messes, Serjeants' Messes and Barrack Rooms throughout the Royal Air Force at home.

It is for this reason, and because I know you give us all a fair hearing, that I should like to endeavour to let you have some further enlightenment into the inner workings of some of the R.A.F. Stations in which it has been my pleasure to serve.

Now, to be quite candid, I am an ex-Army N.C.O. employed in the Clerical Branch of the R.A.F. and you may rest assured that I miss my drill and grieve to see the R.A.F. as a whole losing the benefits derived from drill if carried out in a well organised and efficient manner by *experienced* instructors. Personally I am in poor health as the result of missing my regular exercise on the parade ground, and I long for the time when drill will be revived, but this is where some enlightenment is necessary to anyone outside the Service.

In the first place it must be remembered that hundreds of the W.O.s and Senior N.C.O.s in the R.A.F. obtained rapid promotion during the War without being tested, or expected to know much about drill for the following reasons :—

(a) They were highly skilled men.

(b) The few hundred men called the R.F.C. were augmented until there were hundreds of thousands called the R.A.F.

The first reason was the only one, to my mind, that then mattered because it was essential to make engines and machines serviceable and keep them serviceable. To do this, with the trumpery workshops at their disposal and under war-time conditions, required great skill in organising workshops and allotting and supervising jobs.

The second explains itself. Someone had to be promoted rapidly to fulfil the ever-increasing and excessive demands for N.C.O.s and W. Officers.

What result can be expected—is it likely that the seniors, who got their promotion as engineers and know little or nothing about drill, enjoy being held up to ridicule before younger yet better drilled airmen? Of course not and that is one of the reasons why drill is discouraged.

We have yet to arrive at the most important factor of the situation and I will try to explain as briefly as possible.

An establishment is laid down for every unit in the Royal Air Force. In my opinion this will only permit of personnel being available for *work*. In my department there does not appear to be any surplus of staff held to take the place of airmen granted leave or for sickness.

This results in overtime having to be worked although no drill is carried out; and if 250 men are to be given drill for an hour say twice a week, this will mean 500 "man hours" in the workshops or offices having to be worked as overtime to complete work absolutely necessary, to keep records up to date, and the unit efficient.

The only things to be decided are :—

(1) Is drill to be carried out in the R.A.F. regularly and if so to what extent?

(2) Will extra establishment be provided to prevent important work being neglected?

At this point it must be remembered that in the first place hundreds of Warrant and Non-commissioned Officers must be spared from their work in the Shops and Offices in order that they can avail themselves of the opportunity of attending a "Course of Instruction" in drill. This would only be fair because every man likes to think he is proficient for the rank he holds and able to perform the duties expected from one of his rank and service.

When these facts are taken into consideration it will be realised what a tremendous expense to the State it will entail for extra Estal lishments. But even that would be better than having drill (if neces sary) at the expense of overtime which not only brings ill-health i its wake but discontentment to the Service in which I am prou to be serving.

It must be remembered that where a civilian gets extra pay for ove time an airman gets a flat rate of pay and if he works a reasonabl number of hours he earns it without doing any overtime.

(Signed) PRO ET CON.

[Excellent reasoning and very enlightening. Evidentl the provision of adequate drill is a purely financial problen analogous to the provision of an adequate number of pilots If the Air Force is to be properly drilled it must have mor men to do the necessary work which cannot be done whil the personnel are on the drill square.

To put it another way,—If officers and men are to spen 10 per cent. of their working hours on the parade-groun (which only means about three-quarters of an hour a day) then the whole personnel of the R.A.F. will have to b increased in numbers by 10 per cent. And Vote A of the Ai Estimates will have to be increased accordingly. Will th Treasury stand for it?—C. G. G.]

TOKYO—PARIS.

On Sept. 26, Major Abé and Mr. Kawachi, who are flying from Tokyo to Paris and London on two Japanese-built Breguet XIX biplanes (400 h.p. Lorraine-Dietrich engines) flew from Berlin to Strasbourg in 5 hours 40 mins., in very bad weather.

They were welcomed on landing by the French civil and military authorities.

On Sept. 28 they arrived at Le Bourgêt, having flown from Strasbourg in three hours, accompanied by an escort of French military aeroplanes. They were greeted on arrival by M. Laurent Eynac, the French Under-Secretary of State for Air, and a large crowd of interested spectators.

This flight was organised by the Japanese newspaper *Asahi*, by way of returning the visit made by Captain Pelletier Doisy to Tokyo last year.

Following is their itinerary :—

July 25, Tokyo—Osaka, 450 kms.; 27, Osaka—Tatchiarai, 520 kms.; 28, Tatchiarai—Hai-Ju, Corea, 850 kms.

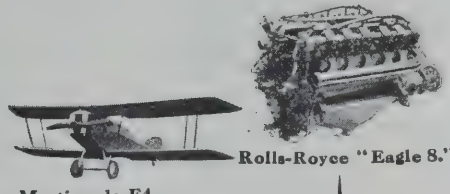
Aug. 2, Hai-Ju—Harbin, 900 kms.; 3, Harbin—Chita, 1,350 kms.; 7, Chita—Verkhne-Udinsk, 250 kms.; 8, Verkhne-Udinsk—Irkutsk, 450 kms.; 10, Irkutsk—Krasnoyarsk, 1,350 kms.; 13, Krasnoyarsk—Achinsk, 650 kms.; 15, Achinsk—Novo-Nikolayevsk, 500 kms.; 16, Novo-Nikolayevsk—Kurgan, 1,180 kms.; 20, Kurgan—Kazan, 1,200 kms.; 23, Kazan—Moscow, 750 kms.

Sept. 15, Moscow—Königsberg; 17-18, Königsberg—Berlin; 26, Berlin—Strasbourg; 28, Strasbourg—Paris.

The fact that Japanese aviators should have been permitted to fly along the trans-Siberian railway (Russia's great strategic line) by the Soviet Government shows how real is the alliance between Japan and Russia. The flight can only have been made with the active assistance of the Russian authorities, who obviously provided fuel and mechanical help. The performance is a further proof that we must treat our future enemies with due respect.

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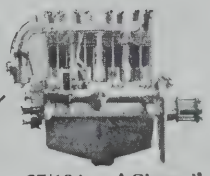
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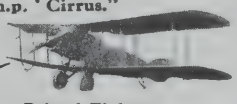
Martinsyde F4

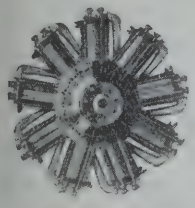

D.H.9a.

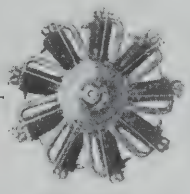

300 h.p. Hispano Suiza.


27/60 h.p. "Cirrus."


Avro Type 504K.

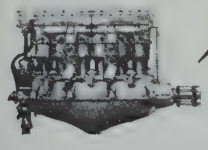

Bristol Fighter.


200 h.p. [illegible].R.2


110 h.p. Le Rhone


D.H 9.


Sopwith Snipe.

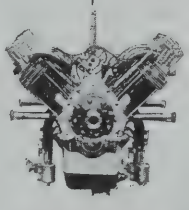

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OUR DESIGNERS.

Although The Aeroplane has at various times been forced by a sense of duty to criticise British aircraft as they exist to-day it has never shown any doubt as to what British aircraft might be if our designers were given a free hand by the Air Ministry's experts. The justification of The Aeroplane's faith in British design is provided in the definite success in the air the Fairey Fox built by the Fairey Aviation Company, whose existence has been kept ridiculously secret by the Air Ministry, and by the obvious excellence in general design and originality in many details of the Supermarine monoplane and the Gloster biplanes which have been built for the Schneider Trophy Competition.

One has always stated definitely that if British designers of aeroplanes and aero-engines were allowed to use their talent unhindered they would produce aeroplanes which would have a better performance than any in the World as well as being better in construction, as they are indisputably at present. Therefore one cannot help feeling a certain amount of surprise that a British aeronautical paper should say, last week, of the Supermarine-Napier S.4.

One cannot help feeling a certain amount of surprise that a British designer has had sufficient imagination to produce such a machine.

A good many months ago one raised a storm of indignation in the British Aircraft Industry by insinuating that when Mr. Fairey imported American ideas in engines and aeroplanes to this country he was doing a service to British Aviation in that the competition thus introduced would improve the breed of British aircraft. Later one disclosed the fact that certain remarks in this paper on the subject of aeronautical engineers had produced an attempt on the part of certain aircraft firms to induce the Aircraft Trade to withdraw their advertising from The Aeroplane.

Recent developments have justified one's statements. British aircraft designers who have been left free from interference by Air Ministry experts, owing to the enterprise of their employers and to the foresight of the higher officials at the Air Ministry acting under the spur of competition with American ideas, have produced designs of the highest excellence and have absolutely justified one's re-iterated belief that our designers do not lack imagination or ability.

THE ITALIAN TRIUMPH.

At 16.00 hours on Sept. 26, Major the Marchese di Pinedo and Signor Campanelli, his engineer, arrived at the Kasumigaura Naval Air Station, Tokyo, on their Savoia 16 bis flying-boat (450 h.p. Lorraine Dietrich engine), thus completing the flight from Rome via Melbourne to Tokyo begun on Apr. 21, 1925.

He was met by the Italian Ambassador, his staff and many important officers of Japanese aviation, and was received with great enthusiasm.

The Marchese di Pinedo will stay in Japan for three weeks, during which time a new engine will be installed and the machine completely overhauled. He will then return to Italy by air but the route to be followed is not yet definitely settled.

The last portion of the flight from Shanghai was made in very foggy weather. They left Shanghai on Sept. 23 at 11.20 hours, and arrived at Mokpo, Korea, at 16.00 hours. On September 24, after leaving Mokpo they ran into dense fog and were forced to alight at Kushikino. Two hours later they resumed their flight, but were again driven down at Yamakawa, 40 miles south of Kagoshima.

On Sept. 25 they flew from Yamakawa to Kagoshima, and on the 26th they flew from Kagoshima to Kasumigaura, Tokyo.

The successful conclusion of this flight is very satisfactory. With the exception of the American Round-the-World-Flight it represents the largest and most arduous flight ever undertaken and completed.

Unlike the American world flight, only one machine and engine was used, and with the exception of two overhauls, one at Sydney and one at Corregidor, in the Phillipines, the 20,000 miles were covered with the original equipment that left Sesto Calende on Apr. 21.

The physical stamina of the crew and the astounding faith placed in the 450 h.p. Lorraine-Dietrich engine contributed largely to the success of the flight. Although the Savoia 16 is a pure flying-boat, and not an amphibian as has been reported in some papers, Major di Pinedo flew from Alexandretta to Baghdad across the Syrian desert and from Bombay to Coconada across the Indian peninsula.

The Marchese di Pinedo served throughout the War 1914-18 as a pilot and until he began this flight he was Chief Staff Officer to the Italian Royal Air Force or Regia Aeronautica. Since the completion of the flight he has been promoted to the rank of Lieut.-Colonel.

It is interesting to note that the Savoia 16 ter was coated, at the special request of the Italian Air Ministry, with Titanine Dope and aluminium Nitro-Varnish, so that the British Aircraft Industry can claim a share in the success of this flight.

The following is the itinerary of the complete flight.

The first portion to Melbourne is notable for the fact that in 49 available days 31 stages each averaging 490 miles were covered in a total of 145 flying hours.

The second stage, from Melbourne to Tokyo, following the east coast of Australia and the Western Pacific Archipelago had never previously been flown over and was covered in unfavourable weather.

Apr. 21, Sesto Calende—Brindisi; 23, Brindisi—Leros; 24, Leros—Alexandretta; 25, Alexandretta—Baghdad; 26, Baghdad—Bushire, 27, Bushire—Bander-Abbas; 29, Bander-Abbas—Charbar.

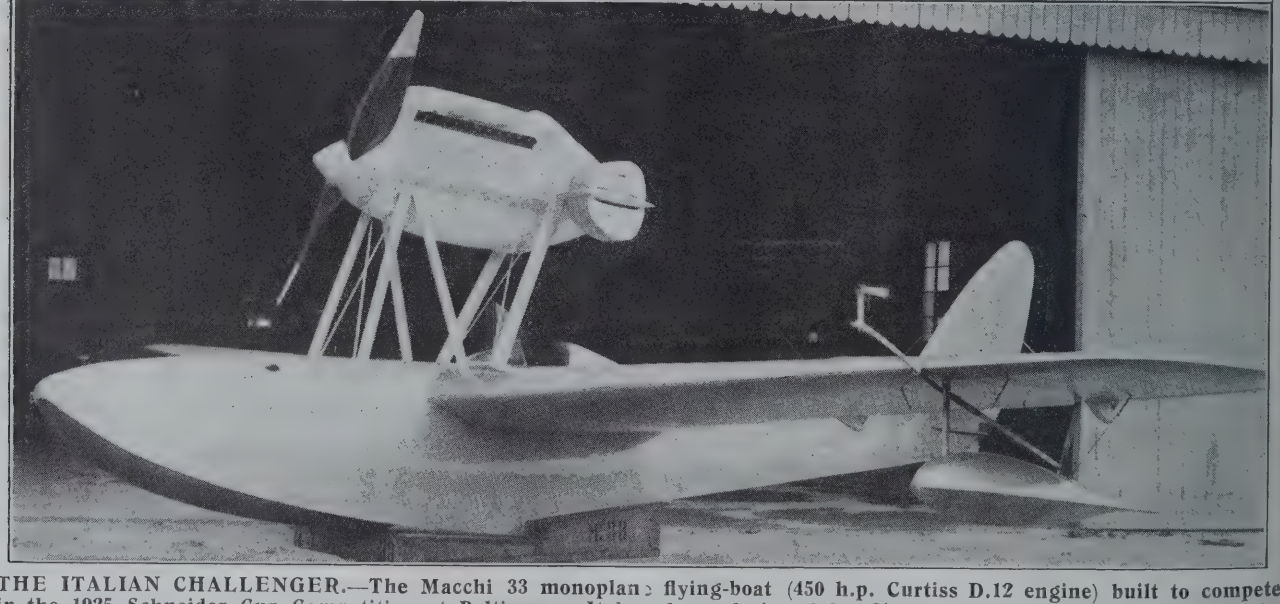
May 4, CharLar—Karachi, India; 10, Karachi—Bombay; 11, Bombay—Coconada; 12, Coconada—Calcutta; 13, Calcutta—Akyab, Burma; 14, Akyab—Rangoon; 18, Rangoon—Tavoy; 19, Tavoy—Mergui; 20, Murgui—Puket, Siam; 22, Puket—Penang; 23, Penang—Singapore; 24, Singapore—Batavia, Dutch E. Indies; 27, Batavia—Sourabaya; 28, Sourabaya—Bima; 29, Bima—Kupang; 31, Kupang—Broome, Australia.

June 1, Broome—Port Hedland, Carnarvon; 2, Carnarvon—Perth; 3, Perth—Banbury; 4, Banbury—Port Albany; 5, Port Albany—Israelite Bay; 6, Israelite Bay—Port Eyre; 7, Port Eyre—Adelaide; 8, Adelaide—Melbourne. (*End of first stage—distance* 15,000 *miles in* 145 *flying hours.*)

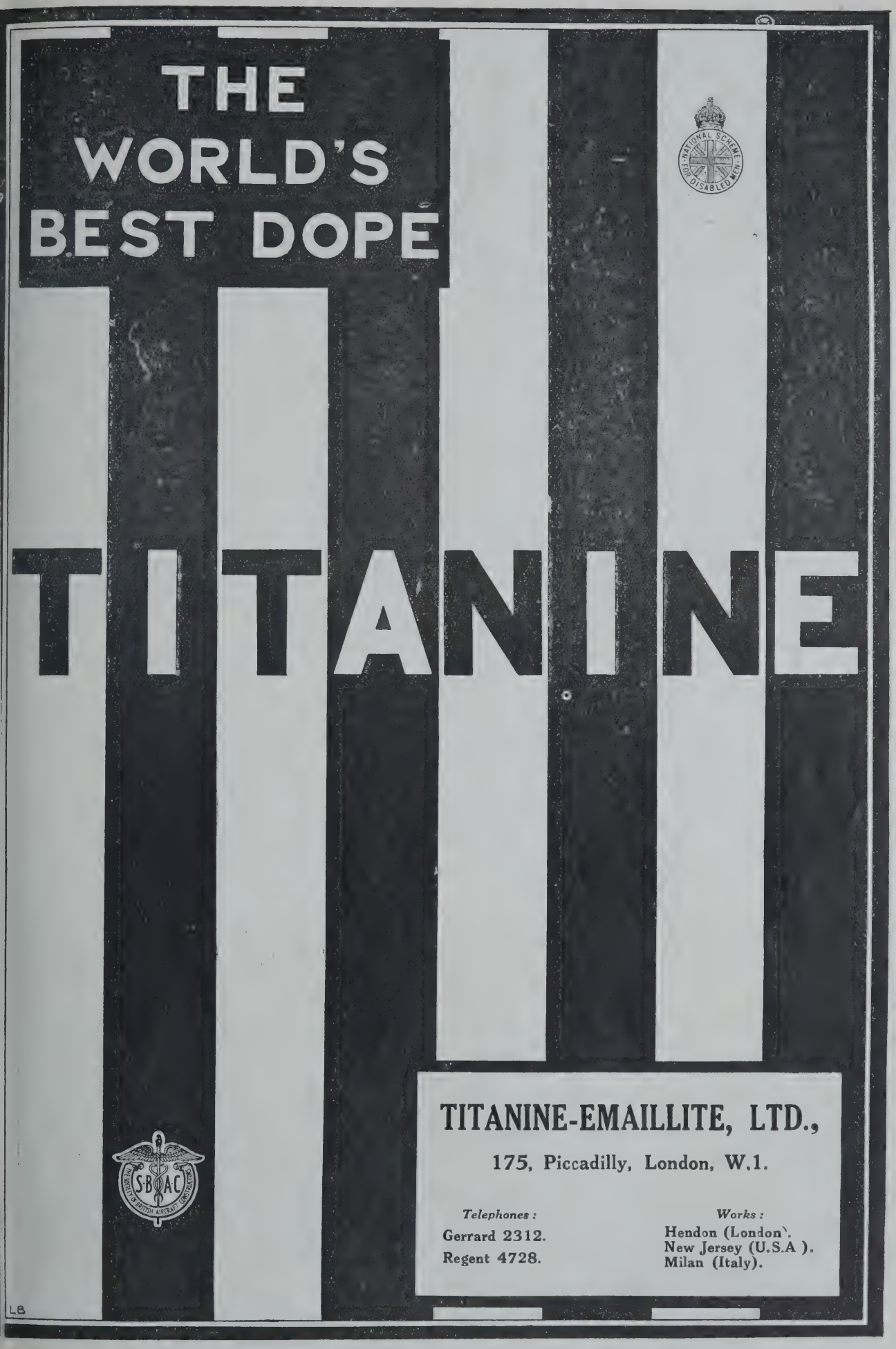
July 16, Melbourne—Sydney.

Aug. 6, Sydney—Brisbane; 7, Brisbane—Rockhampton; 10, Rockhampton—Townsville; 11, Townsville—Innisfail; 12, Innisfail—Cooktown; 13, Cooktown—Thursday Island; 14, Thursday Island—Merauke, Dutch N. Guinea; Merauke—Dobo, Aru Islands; 17, Dobo—Amboina, Molucca Islands; 18, Amboina—Merrado, Celebes; 19, Merrado—Zamboanga, Mindanao; 22, Zamboanga—Cebu, Phillipines; 23, Cebu—Tayabas, Luzon; 27, Tayabas—Manila, Luzon.

Sept. 16, Manila—Aparri, N. Luzon; 19, Aparri—Tamsui, Formosa;



THE ITALIAN CHALLENGER.—The Macchi 33 monoplane flying-boat (450 h.p. Curtiss D.12 engine) built to compete in the 1925 Schneider Cup Competition at Baltimore. It has been designed by Signor Castoldi and will be flown by Signor N. de Briganti.


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A comprehensive scheme has been drawn up by the de Havilland Aircraft Co., Ltd., for providing a service for housing, maintenance, etc., for the owners of de Havilland Moths.

Suitable housing accommodation and attendance is provided at Stag Lane Aerodrome for a monthly charge of £2 10s. per machine. This compares very favourably with the extortionate demands of the Department of Civil Aviation for private machines at Government-owned aerodromes for which the unfortunate owner of an aeroplane is mulct of the sum of £10 per month. The de Havilland charge includes assistance in removal of the machine from the hangar, starting the engine, fuelling, etc. This can also be had for a weekly charge of 15s.

Qualified ground engineers are available to examine the aircraft, engines and its accessories. Minor adjustments are attended to and the daily certificate signed. The fee for this examination is 7s. 6d.

External cleaning of the aircraft, cleaning its cockpits, etc., costs 7s. 6d. a time.

Fuel, oil, aircraft and engine replacements and general supplies can be provided at the current retail prices.

Major adjustments, overhauls, repairs, etc., can be executed and charged for on a cost plus profit basis. If required an estimate can be submitted before the work is undertaken.

It will be appreciated that the charges for ground engineer's examination and cleaning are calculated as occurring during normal working hours and therefore if these services are required at other times an additional charge covering the overtime of any employee may be necessary. Prior notice during week-ends or other times when the de Havilland establishment is *en fête,* should be given when skilled attention is required. Furthermore it should be remembered that no landing fees whatever are charged at Stag Lane Aerodrome.

This Service, the first of its kind ever put on a basis within reach of the pockets of the ordinary person who can afford to run a motor-car, is exceedingly interesting and the de Havilland Company are to be congratulated on this step towards making "flying for everybody" nearer to an accomplished fact.

AN AIR SERVICE IN THE TROPICS.

Preliminary investigations have been made with a view to running an experimental air line from Khartum to Kisumu, the railhead of the Uganda Railway. Mr. T. A. Gladstone, the well-known seaplane pilot, who is a director of the North Sea Aerial and General Transport Company, which originated from the Blackburn Aircraft Co. Ltd., has been in charge of the arrangements and has surveyed the route. This route is one link of what is hoped will be a through service from Cairo to Cape Town.

A special eight-seater amphibian is being designed and built for the service by the Blackburn Aircraft Co. Ltd.

One gathers that the chief objection to such a service is the risk of damaging hulls and floats when alighting or taking off, owing to the amount of floating material in tropical lakes and rivers, and the subsequent likelihood of the passengers and pilots providing a meal for some deserving crocodile.

So profitable to the crocodiles did such a service seem in the Congo that it was suggested that when the Belgian Government contemplated such a service the crocodiles might be approached to subsidise the undertaking—presumably with crocodile skin provided by sacrificing their first-born amid crocodile tears.

However, Mr. Gladstone knows more than most peopl about seaplanes and it may be taken for granted that he ha gone into this question thoroughly. One imagines from th fact that he has reported favourably on the scheme that h has found a solution for that particular difficulty.

All of this has nothing whatever to do with what M Gladstone said in 1882.—G. D.

THE POLAR EXPEDITION.

A lecture was given by Capt. R. Amundsen at the Centra Hall, Westminster, on Sept. 28, in which he described h flight towards the North Pole.

Capt. Amundsen was introduced by Capt. E. R. G. R Evans, R.N., a member of the late Capt. Scott's Antarcti Expedition. Capt. Evans said that Capt. Amundsen was worthy descendant of a race of Vikings one of whom dis covered America 500 years before Christopher Columbus.

[To hiscredit, the Viking kept it dark.—ED.]

Capt. Amundsen described the loading of the two Dornie Wal flying boats, with their Rolls-Royce engines, onto th deck of the *Hobby,* and the photographic slide showed th huge packing cases projecting over the deck on either side

It is a pity that so few of Capt. Amundsen's slides ar really good. A good many of them are frankly bad. Bu on the whole they give a very good idea of the vast tract of pack ice over which the expedition travelled.

In spite of the efforts of two distinguished meteorologist (shown on the screen, playing, as is the habit of their kind with a large toy balloon), the expedition encountered a goo deal of unexpected weather, including dense fogs.

It was probably the fog which they encountered over Am sterdam Island which put them off their course and led t the failure of the expedition.

Capt. Amundsen said that meteorology was in its infancy but that he considered it had vast possibilities in the nea future.

The lecturer's description of the discovery that half thei petrol was used when there was only one tiny patch of ope water in sight and the pilot's subsequent alighting wit great skill in a narrow channel and their efforts to preven the machine from being crushd by the advancing ice, is thrilling story.

They were not entirely unlucky however. Some sort of Joss made the other machine alight only 4½ miles from th first machine so that the efforts of both crews could be com bined to salvage one machine.

They also discovered when, after days of valiant effort, the made a seventh taking-off run, six having been destroyed b the moving ice, that the floe from which they eventually ros was the only possible one for scores of square miles.

On their return journey luck was again with them, as th magnetic compass on which they had been told they coul not rely so near the North Pole proved most effective.

Capt. Amundsen said that he had often been asked wha was the result of the expedition. His reply briefly was 200,00 square kilometres of new territory.

In conclusion Capt. Amundsen said that they had bough an airship from the Italian Government (slide showing th N.1), in which he hoped to fly from Spitzbergen to Alask next summer. The airship had a range of 6,000 kilometre and owing to the impossibility of making a safe landing i this territory from either an aeroplane or a flying boat, h hoped that the airship would prove a more useful craft.

He paid a special tribute to the pilots of the two Dornie machines and said that all the expedition felt the utmos confidence in the Rolls-Royce engines.



THE SUPERMARINE TEAM.—Messrs. G. Brown, H. W. Grimes, H. Powell, C. Coe, R. J. Mitchell, Capt. C. B. Wilson, Commander J. Bird, Capt. H. C. Biard, Messrs. W. Lind Jackson, and H. B. Pickett.


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OF AERONAUTICS IN AMERICA.—I.

Every year at about this period there is transmitted to the offices of this paper, an annual—the "Aircraft Year Book"—a volume the size of what used to be a six-shilling novel and containing a good deal more of interesting reading than is usually to be found in works of this size. The "Aircraft Year Book" is published by the Aeronautical Chamber of Commerce of America, Inc., a body whose headquarters are in New York, and whose objects, as set forth in the opening clause of the Articles of Association, are "To foster, advance, promulgate and promote trade and commerce throughout the United States, its territories, possessions, and in foreign countries, in the interests of those persons, firms or corporations engaged in the business of manufacturing, buying, selling, and dealing in aircraft, aircraft motors and aircraft parts and accessories of every kind and nature"

The Aeronautical Chamber of Commerce includes among its members practically all the known American aircraft and aero-engine manufacturing firms, together with a large number of aircraft-operating concerns, manufacturers and distributors of aircraft accessories and components, certain representatives of insurance interests, and even of journals which deal to some extent with aeronautics.

Sharing the same office address, and with many officers, is the Manufacturers' Aircraft Association, with a membership composed entirely of manufacturing firms deeply involved in aeronautical productions.

Restrained Propaganda.

The year book—as its name would suggest—is a review of the year's achievements—mainly, but not exclusively American. It is also—as is inevitable considering its origin—a review with a purpose—that of pushing aviation in the interests of the American Aircraft Industry. It is not to be supposed that because it is essentially a propagandist publication, that therefore it is of limited interest. It is by no means propaganda of the more blatant type. The Aeronautical Chamber of Commerce evidently does not consider that the patrons of the "movies" constitute the public to whom its appeals must be addressed—but its propaganda is addressed to the educated business classes of America rather than to the agricultural denizens of the Middle West.

It is quite possible that a certain lack of cohesion as between the members of the American Aircraft Industry has had its effect in maintaining this work at its present level of restrained statement. The American aircraft manufacturer—like the British—has at the present to look to his Government as his chief customer. But whereas the British Air Ministry and the British Aircraft Industry have come to terms by which the Air Ministry recognises the rights of the individual manufacturer in his own designs, and does distribute its orders in such a manner as to keep the recognised designing firms in reasonably steady employment, the American Army and Navy have pursued a policy of playing off one manufacturer against the other.

The U.S. Government and The Aircraft Industry.

The method, briefly, is that of acquiring the right to use the designs of new aircraft produced to its specification by designing firms, and then of calling for tenders from all and sundry for the production of machines to such designs as met with its approval. As a result the designer of a successful machine has more than once received no orders beyond the first experimental order for that type, and has had the pleasure of seeing it produced in quantity by a rival, while his own workshops have been idle. To say the least, this state of affairs has not been conducive either to prosperity or to harmony as amongst the Industry as a whole. While neither the firms who had orders but no accepted designs, nor those with accepted designs, have been entirely satisfied with the condition of affairs, they have perhaps not quite seen eye to eye with each other as to the attitude which should be adopted, to bring about a more satisfactory state of affairs.

An Inter-Industrial Agreement.

Recently, largely through the good offices of Mr. Lester D. Gardner, of *Aviation*, representatives of the more eminent of the American aircraft manufacturers have been brought together to settle upon a uniform attitude in regard to the policy of the U.S. Government in this matter, and have agreed, among other matters, that the firms concerned should undertake to recognise each other's "design rights," and shall co-operate, one with another, to maintain these rights, and shall urge upon the U.S. Government the adoption of a policy in regard to the placing of orders which shall secure that work on new aircraft shall be fairly shared out amongst the members of the Industry, on some basis other than the hitherto existing one of the lowest tender.

Such an agreement as this may be expected to lead in the near future to a greater unanimity of opinion on the part of the Aeronautical Chamber of Commerce in regard to U.S. Air Service Policy, and may, to some extent, lead to a less subdued tone in its Year Book. It is hoped that the worst may not occur—though it should be noted that the Presid of the Motion Picture Producers and Distributors of Amer favoured the original conference which led to the abo mentioned agreement with his views and advice.

So far on the purely political side the Year Book has be content to give due prominence to the very fine performan of the American Air Services, to stress the national importa of maintaining and increasing those services, and—curiou enough—to agitate vigorously for the introduction of so form of Government control of civilian flying analogous that exercised in this country by the Air Ministry. T arguments in favour of this control are precisely those wh have been used in this country to defend the Air Minis and its Air Navigation Regulations—namely that the fut of Civil Aviation depends upon the growth of a public feeli of confidence in the safety of flying, and that Government c trol alone can prevent the flying of unsafe aircraft by responsible operators, and so prevent the occurrence of a la number of avoidable accidents.

The American Industry and An "Air Law."

The arguments in favour of an "air law" of this sort ha been reinforced by statistics of accidents to aircraft in t United States. In dealing with these, aircraft operators ha been divided up into two classes—the itinerant or "gypsy flyers, and those operators who have established headquart and operate from fixed bases. Neither class of operator is any sense under Government control—but there is a ve distinct difference between the two classes. The itinera flyer is usually a man with relatively limited resourc equipped with war surplus aircraft, who travels from pla to place giving joy-rides and putting up "stunt" exhibitio He uses aircraft acquired at a very cheap rate from t large war-surplus which exists in the States, and as he ne never remain in one spot long enough to acquire a reputati at all, he does not worry unduly about accidents, but ru his machine to death and moves on to a new pitch bef people get too scared of him to patronise his performances.

The fixed-base operator, on the other hand, is usually man of some financial resource, who is endeavouring to r a real commercial service—usually of the taxi type—and w naturally cannot afford to acquire a reputation for reckle ness and unreliability, and who therefore buys reasonab modern, or properly overhauled aircraft from responsib aircraft firms.

The accident statistics given in the Year Book give t "fixed-base" operators credit for a very high level of safe Their casualty rate compares excellently with that attain in this country, for instance. From Oct. 1, 1923, to Nov. 1924, this class of flying accounted for three deaths and injuries for 1,000,000 miles flown. One of these deaths w caused by a parachute failing to open at an exhibition, and barely to be regarded as a normal commercial flying accide For the itinerant class, the number of accidents is enormous greater, and for approximately an equal mileage flown, the accidents accounted for 75 deaths.

Exuberance and Irresponsibility.

On the face of it, these figures call for some action to r strain the exuberance of the gypsy. But if the fixed-ba operator is restrained by his own sense of responsibility fro taking unjustified risks, it scarcely seems really necessa to saddle the whole future of aeronautics in America with system of Government control, such as we suffer from he The real trouble is, it appears, that the United States Gover ment insists on getting rid of as much of its surplus aircra stock as possible at any price which it can obtain for it.

Accidents result from the sale to all and sundry of jun aircraft at ridiculously low prices, and owing to the weakne of the administration of the law in the U.S.A., it is possib to kill people in large quantities—and that not by negligen alone—without serious risk of being brought to account.

The Aircraft Industry itself suffers firstly, because freque accidents do discourage the public from flying, and, secondl because under present conditions they cannot possibly sell a craft of a type suitable for joy-riding purposes at prices compete with Government "junk."

And it may be assumed that they believe that under a adequate system of Government supervision and the instit tion of airworthiness certificates, a good deal of busine would come their way—either in the reconditioning of surpl machines or in the supply of new ones.

Of Law, and of American Law in Particular.

Now, one is not an expert in the ways of the law, an particularly not of American law. But in most of th civilised countries of the world it is not legally permissib to kill members of the public—even unintentionally—unle one can prove that the killing was practically unavoidabl If the killing was due to negligence then one is usual liable to pay fairly heavily for it, even in cases where th negligence is not held to be of a criminal type. If a due sens

of the business value of a reputation for safety suffices to keep the American "fixed-base" operators from taking undue risks in flying—as it certainly seems to do—a knowledge of the fact that the ordinary law of a civilised land would be brought to bear upon them in the event of their killing or maiming passengers should be sufficient to keep the most care-free of gypsy fliers from risking a killing as the result of criminal negligence.

It may be objected that if the police of a city such as Chicago are unable to enforce the law in respect of killing of malice prepense, it can scarcely be supposed that the police of the United States in general will be able to lay hold of such relatively unimportant criminals as negligent and irresponsible proprietors of aircraft. But if that is the case, who is going to track down offenders against the proposed U.S. Air Navigation Regulations?

The said regulations will of course take effect with all the really responsible aircraft operators of the U.S.A.—who will necessarily be handicapped in their efforts to make flying pay. But there does not seem any particular reason why the really "hard cases" of American Aviation should not go their way as heretofore—unless, of course, the Aircraft Industry can use the hoped-for "Air Law" to prevent the U.S. Government from unloading its aircraft surplus except through the Industry itself, and so making the business of the "gypsy flier" one demanding a little more capital.

Personally one sympathises to a large extent with the American Aircraft Manufacturer in regard to this matter of the Government's policy in regard to the disposal of war surplus. But one hopes that he will fail to obtain the Air Law. It may ease them through some of their present difficulties, but for the good of Aviation throughout the world one must hope that at least one great nation will continue to leave the development of aviation open to private enterprise and initiative unfettered by red tape and political influences. One would suggest that if the Aeronautical Chamber of Commerce could hire a few of the uncaptured criminals of America's great cities to attend to the editors of newspapers who boomed aircraft accidents, the death rate of America would not increase, and the ultimate development of aviation would be better served than by any increase in the already unenforceable bulk of American legislation.

THE PRESS AND AERONAUTICS.

The Morning Post is evidently taking a serious interest in aeronautics other than that which is inevitably associated with aircraft accidents. During the past week or two it has devoted at least two-thirds of a column to accounts of novel aircraft. This is entirely to be welcomed—it is unfortunate that the veil of secrecy which surrounds all really interesting British aircraft should force it to devote this space to foreign products—mainly of doubtful importance or of venerable antiquity.

"A New French Aeroplane" with "Two 9 h.p. engines and No Body," to which some five hundred words were devoted, is the de Monge twin-engined model of a large projected commercial aeroplane. A model of the projected aeroplane—which was of the cantilever monoplane type with the centre section so thickened up as to enclose the passenger accommodation and power plants—was exhibited at Paris at the Salon of 1921. An experimental glider using a very similar wing arrangement was designed by M. de Monge and entered at the abortive glider meeting at the Combegrasse in 1922, but failed to perform. Following this, M. de Monge built a small aeroplane of the same general type equipped with two 35 h.p. Anzani engines, known as the type 7/4. This was a one-third scale model—so far as overall dimensions and arrangements are concerned—of the projected commercial machine and a considerable amount of flying was done on this machine. Towards the end of 1924 the Anzani engines were removed and replaced by two 1,500 c.c. Bugatti car engines. In this form the machine was flown to Paris and brought into the 1924 Salon a week or so after the opening date. The machine has now been submitted for test under the observation of Section Technique and its belated official trials are responsible for the present publicity attained by it. The 9 h.p. engines are 9 h.p. in virtue of rating rules—their actual b.h.p. is certainly not less than 35 or so.

A second novelty which occupies nearly as much space is a so-called "sea flea"—which is a revival by a Russian engineer of the very old idea of making a seaplane that just cannot fly but will proceed over the water in a series of leaps. Just why a craft with the characteristics of an overloaded seaplane handled by a poor pilot should be produced of malice aforethought is a little difficult to understand.

As against these two items the fact that seriously intended aircraft—apparently the famous four-engined Latecoére 6—is actually undergoing its tests at Francazal, Toulouse, is given approximately one inch.

"LUFTHANSA."

Written by Herr Fischer von Poturzyn and published by the firm Werner Lehmann, of Leipzig, "Lufthansa" deals with aviation as a whole, present and future, military and commercial, particularly in the latter sense. It is not a technical publication, but rather a praiseworthy effort to incorporate in one single volume the political possibilities of aerial navigation in as many aspects as one can possibly associate with aeronautics.

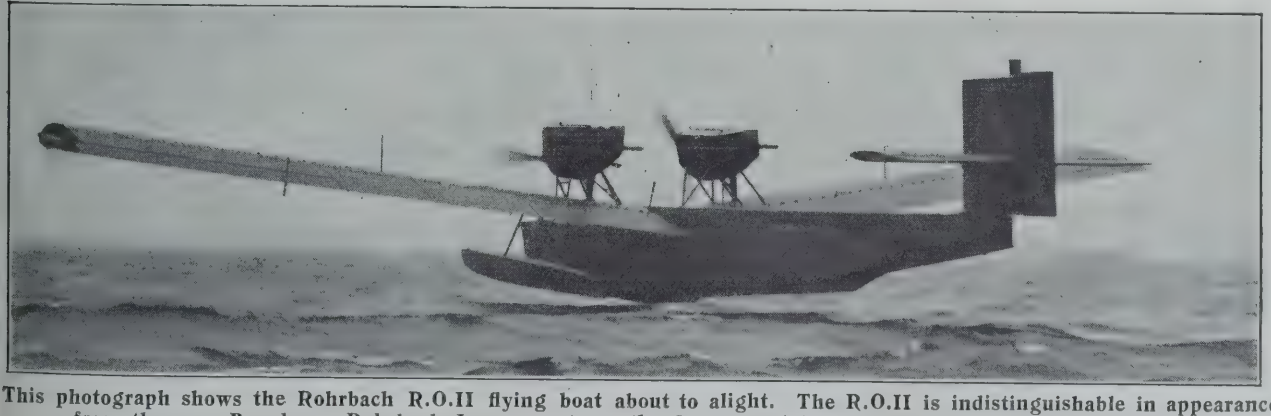
There does not seem to be any doubt that Herr von Poturzyn is well documented as regards the different subjects upon which he dwells. And he deserves congratulations on the rich vocabulary with which he has endowed his work. The title of the opening chapter—"Three Dimensional Politics"—gives the key to his literary style.

Although the reader is often reminded that he is to move in an atmosphere of "high" politics, "great" schemes and characteristically emphatic assertions, the fact remains that the book is very cleverly written. By virtue of that intense political feeling which it breathes throughout it is bound to strongly appeal to the German public, and should be highly informative to those of all nations who can read the German language.

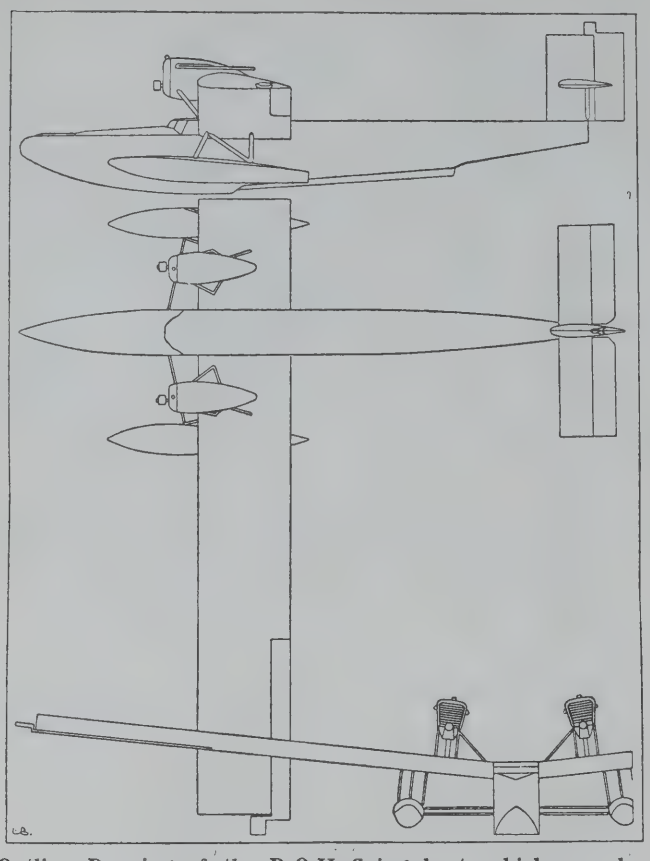
The title reveals its purpose. The very name "Hansa" means far more than the mere existence of the three historic provinces which include the towns of Hamburg, Bremen and Lubeck, for few names have a stronger hold on the German mind. The author has undoubtedly made an inspiring selection in calling his book "Lufthansa." The old Hanseatic Confederation, with its almost omnipotent authority and widespread prestige, is not likely to be revived by a stroke of the pen, however eloquently the hope may be expressed that "the nation should be filled with the Hansa spirit in commercial aviation" so that the "validity of the German might should be accomplished in the 20th century through a German 'Lufthansa.'"

With these closing words the reader is somewhat disconcerted when he remembers that just a few moments before he was being regaled with high-sounding professions of German pacifism, vis-à-vis the *imperialismus* of England and French *militarismus*.

On the whole, it is an interesting survey of aviation in general, and contains statistics and other data illustrating the position of the different air companies, their routes, organisation and aims. It also deals with the big aircraft of the future, aero instruments, the future flight to India in two days, some time round about 1940, as compared with the sea voyage which took six months in 1840.



This photograph shows the Rohrbach R.O.II flying boat about to alight. The R.O.II is indistinguishable in appearance from the new Beardmore-Rohrbach Inverness type, the first of which was recently delivered at Felixstowe.



Outline Drawing of the R.O.II flying boat, which may be taken to represent the Beardmore-Rohrbach Inverness with a high degree of accuracy.

NEW TECHNICAL LITERATURE.

Aeronautical Research Committee: Technical Report for 1923/24.—Two volumes. Vol. I, Aerodynamics (model and full scale); Vol. II, Scale Effect, Materials, Instruments, Engines, etc. Price £1 2s. 6d. net each volume. (These two volumes include the formal report of the Committee for 1923/24, together with R. & M.s issued during that period, in bound form.)

R. & M. No. 932.—Experiments on a Model of a Bristol Fighter Aeroplane (1/10 Scale). Section 1, Force and Moment Measurements at Various Angles of Yaw. By H. B. Irving and A. S. Batson. Section 2, Lateral Derivatives by the Forced Oscillation Method. By R. A. Frazer, A. S. Batson, and A. C. Gadd. Price 2s. net.

R. & M. No. 947.—The Interference of Wind Channel Walls on the Downwash Angle and the Tail-setting to Trim. By H. Glauert and A. S. Hartshorn. Price 6d. net.

R. & M. No. 959.—A Method of Improving the Properties of Aluminium Alloy Castings. By S. L. Archbutt. Price 1s. net.

Commissariato D'Aeronautica: Caratteristiche Aerodinamiche di Ali.—Fascicolo IV and Fascicolo V. Published by the Libreria dello Stato, Rome.

Wissenschaftlichen-Gesellschaft fur Luftfahrt: Berichte und Abhandlung. Heft 12, July, 1925. Published by R. Verlag von R. Oldenburg, München and Berlin. Price 12 marks.

Deutscher Flug-Almanach fur Gleit-und Motor Flugwesen. By Hans Richter. Published by Verlag Giudo Hackebell A.G., Berlin, S.14.

The Journal of the Royal Aeronautical Society, No. 177, Vol. XXIX, September, 1925.—Contents: Notices; "The Rigid Airship in Relation to Full Scale Experiment," by R. A. Frazer; "Notes on the Flying Qualities of the Light Aeroplane Compared with Larger Types," by Sq. Ldr. R. A. de H. Haig, R.A.F. Price to non-members 2s. 6d.

THE ROYAL AERONAUTICAL SOCIETY.

On Thursday Oct. 1 Air Vice-Marshal Sir Sefton Brancker, K.C.B., A.F.C., F.R.Ae.S., Director of Civil Aviation and the Chairman of the Royal Aeronautical Society, will deliver the inaugural lecture of the forthcoming Session at the Society's rooms, 7, Albemarle Street.

The subject will be "The Lessons of Six Years' Experience in Air Transport."

BRITISH ENGINES IN GERMANY.

News has been received that the Messerschmitt light aeroplane fitted with Bristol Cherub engine and piloted by Carl Croneiss won first prizes for speed and height at the flying meeting at Munich held in connection with the Munich Aero Show. Another Messerschmitt was fitted with an A.B.C. Scorpion.

At the present moment no details have been obtainable either of the flying competition or of the Aero Show itself but particulars will be published as soon as they are available.

AUSTRALIAN NEWS.

A correspondent in Sydney, Australia, writes:—

In connection with the visit of the U.S. Pacific Fleet to Australia, Flt. Lt. McIntyre flew a Fairey III D. to Eden, and when the Fleet was some 120 miles off our coast, flew out and met it. The weather was very bad, and the night before a 94 m.p.h. gale had been registered. The visibility was about 500 yards. Flt. Lt. McIntyre found the Fleet, and they were so impressed that they wirelessed congratulations to the Air Board.

The III D. then proceeded to Sydney and joined in the welcome there. There were 20 machines out to meet the Fleet. This is the first time more than nine machines have been in the air together, at least at Sydney.

There were ten machines from No. 3 Squadron, R.A.A.F., Richmond, as well as several private machines, and five out of the 15 or 16 Vought U.O.1s, belonging to the U.S. Battle Fleet, each ship having two or three. The American Voughts flew every day during the visit, and the catapults appear to be very useful. There is a big jerk when the trolley comes to a halt, and the wing bracing looks like a petrol filter. Lieut. Browning, of the U.S.S. *Idaho* says that the machines have no useful load and no performance, on account of their strength.

The Marchese di Pinedo, who was in Sydney at the time, also flew out to welcome the Fleet, and dropped some green-tailed message tins on the U.S.S. *California*.

The best news, however, is that the Australian Aero Club is going to start a Flying Club, equipped with D.H. Moths. The details are not quite settled yet, but the Government is to supply the machines and a spare Cirrus engine, and lend the Club a portion of the Mascot Aerodrome hangar.

This year's Light Aeroplane Competition has been postponed until September, 1926, but a great flying day will be held in November, and Light Aeroplane races, as well as the annual Aerial Derby, will be held then.

With regard to the Widgeon, the following is a summary of the damage caused by the "dip." About three feet of the hull was stove in. New steps are being fitted as well as a new keel, and new chines. The hull will also be covered with fabric, like the Savoia. The engine was "all out," when the Widgeon went in, and the airscrew naturally suffered. Wackett says that he never took the "stick" off the dashboard, and that he knew nothing until the sea hit him.

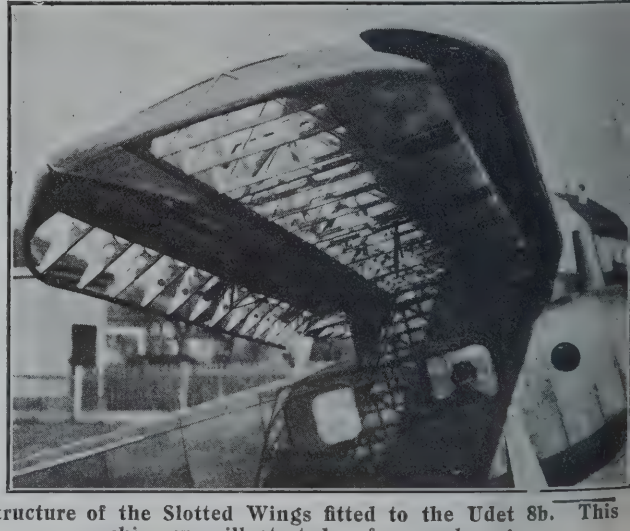
A HANDY HELP.

["The Motor Repair Manual." 124 pages. Temple Press Ltd., 7-15, Rosebery Avenue, E.C.1. 2s. 9d. post free.]

This is the fourth edition of this useful handbook, which has been revised, newly illustrated and enlarged. So many people in the Air Force and connected with aviation are owner-drivers and amateur car repairers that many readers of this paper will find the Motor Repair Manual extremely useful.

With its help owner-drivers can certainly economise in maintenance charges and save considerable time in making the simpler repairs and adjustments. Those who run their own workshops will find the new sections on the lathe and its uses and the descriptions and illustrations of tools particularly informative.

Another addition is a description of how to build serviceable motor sheds cheaply and there are useful hints on fitting up a repair shop and providing it with the necessary tools.—C. G. G.



Structure of the Slotted Wings fitted to the Udet 8b. This machine was illustrated a few weeks ago.

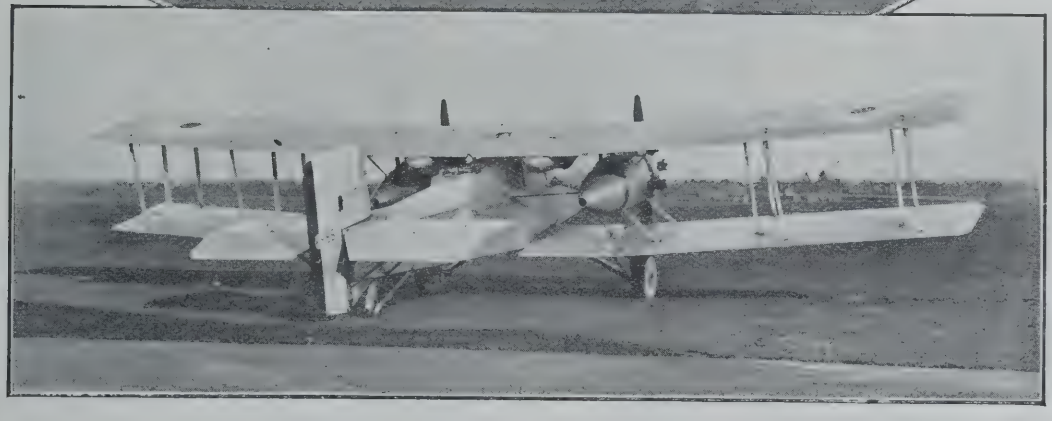


THE Bugle Mark I. High Performance Twin-Engined Day Bomber. Entirely of Metal Construction.

Looping photographs by courtesy of "Flight."







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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 14; Tuesday, 12; Wednesday, 24; Thursday, 25; Friday, 23; Saturday, 18; Sunday, 8.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 68, passengers 303, freight 17 tons.

AIR UNION:
Paris—London: Machines 41, passengers 25, freight 10½ tons.

K.L.M.:
Amsterdam—Rotterdam—London: Machines 11, passengers 35, freight 2 tons.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 4, passengers 3.

SPECIAL MACHINES: Nil.

Total number of trips by British machines: 68, carrying 303 passengers. Foreign machines: 56, carrying 253 passengers.

Comparative Figures:

For week ending Sept. 27:
Machines, 124; Passengers, 556; Crews, 163; Total personnel, 719.

Corresponding week, 1924:
Machines, 110; Passengers, 481; Crews, 132; Total personnel, 613.

Corresponding week, 1923:
Machines, 106; Passengers, 350; Crews, 162; Total personnel, 512.

Corresponding week, 1922:
Machines, 106; Passengers, 321; Crews, 190; Total personnel, 511.

Corresponding week, 1921:
Machines, 82; Passengers, 208; Crews, 105; Total personnel, 313.

Corresponding week, 1920:
Machines, 108; Passengers, 175; Crews, 132; Total personnel, 307.

Croydon Notes.

Winter draws on (as the famous episcopal saying has it) and winter services are coming into being. K.L.M. runs only one service per day each way and the services of the other lines are now being curtailed.

All the Air Lines have agreed to cancel entirely the Sunday services during the winter. This seems an amazing decision and, one thinks, rather goes to prove that air travel is only a game at present and need not really be taken seriously. Imagine the situation if the railways, 'buses, trams, boats, etc., all came to the same decision. [Anyhow the Sabbath *would* be a day of rest.—ED.]

On the other hand it may be a clever move to create a demand for Sunday air travel. Everyone knows that feeling, when it is early closing day for shops, when at once one remembers that one *must* buy countless articles which one *knows* one cannot do without for another minute. It then seems that if only the shops were open on that particular afternoon the shopkeepers would make a fortune. Curiously enough the next morning when the shops are open again that reckless buying feeling has passed.

So perhaps everyone will feel on Sundays when the air lines are closed that they simply must travel by air and they will all flock to Croydon in their thousands and tens of thousands gazing at the "sleeping air giants" (this of course includes machines and personnel) only to turn hopelessly aside and homeward plod their weary way.

And then will come the springtime and one day these would-be Sunday-air-travellers, who by this time have acquired the habit of going regularly to Croydon every Sunday, will suddenly find Sunday air travel resumed. Before they know where they are Mr. Eskell will have caught some, Mr. Leverton others, and Mr. Bouderie others. They will be sold tickets "by air to anywhere" before they know where they are and they will not know where they are going until they get there. And Sunday traffic will have been created.

It is understood that the marine branch of Imperial Airways Ltd., which may be remembered as having run an almost regular annual service between Southampton and Guernsey, is shortly to spring into life once more. They have two Supermarine Sea-Eagles which during their hibernation have grown another 100 h.p. and are now equipped with Napier Lions These machines now, one hears, leap off the water like Mr. Abrahams the athlete used to leap off the ground.

In addition to these, Imperial Airways Ltd. are to take over the Supermarine Swan (two Napiers), and the Fairey Freemantle (Rolls-Royce Condor), for operational tests. The Freemantle was originally built for Mr. MacIntosh and Mr. Tymms to fly round the World, but the U.S. Army people did it before the Freemantle was completed. Consequently it was taken over by the Air Ministry.

One understands that it will be used for experiments to get data of the cost of carrying loads long distances without a stop. The machine is capable of flying non-stop with about five passengers from Southampton to Malta in about 12 or 14 hours.

The marine branch of Imperial Airways Ltd. is, one understands, thinking no longer only in terms of Southampton-Guernsey. A service from a suitable station near London, across the sea to Amsterdam and on to Copenhagen and Sweden, is under consideration.

A more up-to-date version of the Swan, such as the Southampton, with Mr. Mitchell's improvements, ought to meet the case. Perhaps with this end in view, we may shortly see the first seaplane that is really a commercial proposition.

—G. D.

A BEVY OF ERRORS.

The following paragraph appeared on Sept. 24 in the usually well-informed *Manchester Guardian*:—

A special Napier Vulcan express equipped with a bed slung from the sides of the cabin by elastic suspension boards was flown along the Imperial Airway from London to Paris yesterday carrying a patient afflicted with spinal trouble, to whom the smallest jar might have proved fatal.

First and foremost there is no such machine as the "Napier Vulcan." The machine in question was a Vickers Vulcan with a Napier engine.

"The Imperial Airway from London to Paris" is good. Since when has Imperial Airways Ltd. owned the air or a section of it between London and Paris? If, as the writer of the paragraph seems to think, the user of the air route is the owner, then the claim of the Air Union to the London-Paris air route is about seven times as strong as that of Imperial Airways Ltd. It is time that silly, ill-informed statements like these were stopped.

OFFICIAL NEWS OF THE SCHNEIDER TROPHY RACE.

The Schneider Cup Committee met at the Royal Aero Club on Wednesday, Sept. 23, 1925, when there were present Lieut.-Col. M. O. Darby (in the Chair), Squadron Commander James Bird, Major J. S. Buchanan, Mr. H. Burroughes, Mr. H. T. Vane, Capt. C. B. Wilson, M.C., and Mr. H. E. Perrin.

The arrangements for the shipping of the machines and spares on the *Minnewaska* on the 26th inst., at King George V Dock, were approved.

The following Committee was appointed to assist the Club Representative, Capt. C. B. Wilson, on any questions which may arise in Baltimore: Major J. S. Buchanan, Lieut.-Col. M. O. Darby, Mr. H. P. Folland, Mr. R. J. Mitchell and Mr. H. T. Vane.

The Committee dealt with the correspondence from the Flying Club of Baltimore on the question of the course for the Race, the Navigability Tests, and the accommodation for machines and personnel at Baltimore.

The Schneider Cup Expenses Fund: The following Donations towards the expenses of sending over the British Challengers were reported:—The Royal Aero Club, £250; Shell-Mex Ltd., £250; The Fairey Aviation Co. Ltd., £100; Short Bros. Ltd., £50; Titanine-Emaillite Ltd., £50; The Robinhood Engineering Works Ltd. (K.L.G.), £50; Claudel Hobson Carburettors Ltd., £50; British Thomson Houston Co., Ltd., £50.

Racing Numbers: The Racing Numbers allotted by the National Aeronautic Association of U.S.A. were reported as follows:—The United States of America, 1, 2 and 3; Great Britain, 4 and 5; Italy, 6 and 7.

Personnel: The Personnel sailing on the *Minnewaska* with the machines is as follows:—For the Royal Aero Club, Capt. C. B. Wilson. *Pilots:* Messrs. H. C. Biard, H. S. Broad, B. Hinkler. *Representatives of the Competing Firms:* Mr. R. J. Mitchell (The Supermarine Aviation Works Ltd.), Mr. H. P. Folland (The Gloucestershire Aircraft Co. Ltd.), Mr. F. H. Jones (D. Napier and Son Ltd.), Mr. W. Lind Jackson (D. Napier and Son Ltd.). *Mechanics:* Messrs. H. Austin, G. H. Broom, C. Coe, H. N. Grimes, H. Martyn, H. B. Pickett, J. E. Oram, A. Powell, H. Powell, P. Turner.

ALL IN A GOOD CAUSE.

The Duke and Duchess of Sutherland take such a vivid interest in aviation that, on the principle that one good turn deserves another, one would like to draw the attention of aeronautical people to the fact that the Duchess of Sutherland is Chairman of a Committee which is organising a Carnival Ball in aid of the Royal Northern Hospital to be held at the Royal Albert Hall on Armistice Night, Nov. 11.

Till to-morrow tickets will be available at two guineas each, but after that date the price will be raised to three guineas.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS

Applications for tickets should be sent to the Ball Secretary, Royal Northern Hospital, N.7.

As most of the hotels and other places of amusement are so uncomfortably crowded on Armistice Night one suggests that those who intend having an evening out will probably find plenty of room at the Albert Hall, even though the proceeds exceed the Duchess of Sutherland's most sanguine hopes and may suffice to prevent the Royal Northern Hospital from falling down, as seems to be the fashion among hospitals.

PERSONAL NOTICES.

Deaths.

CARTER.—On Sept. 25, at Duxford, Cambs., as the result of a collision in the air, Flt. Lt. Basil Royston Carter, A.F.C., No. 29 (Fighter) Sqdn., R.A.F.

Flt. Lt. Carter served in the R.A.F. during the War. In November, 1920, he was appointed to the Experimental Section of the R.A.E. at Farnborough and was awarded an Air Force Cross in January, 1924. He was promoted to the rank of Flt. Lt. in January, 1925, and posted to No. 29 Sqdn. in March of the same year.

COX.—At Filton, Bristol, on Sept. 23, as the result of a collision in the air, Percival Albert Cox, Flg. Off., Reserve of Air Force Officers.

CUDDON-DAVIS.—At Folkestone, on Sept. 24, as the result of a flying accident, Flt. Lt. Arthur Wilfred Cuddon-Davis, No. 17 (Fighter) Sqdn., R.A.F.

Flt. Lt. Cuddon-Davis joined the R.A.F. in 1921 and served with No. 25 Sqdn. in Constantinople. In March, 1923, he was posted to the R.A.F. Depot, Uxbridge, and in April of the same year to the R.A.F. Base at Gosport.

He was posted to No. 17 Sqdn., Hawkinge, last June. He was promoted to the rank of Flt. Lt. in June, 1922.

EVANS.—On Sept. 21, at Antrim, Northern Ireland, as the result of a flying accident, Henry Collins Evans, Flg. Off., No. 502 (Bombing) Sqdn., R.A.F.

Mr. Evans was educated at Wem Grammar School and took an honours degree in science at Manchester University. He joined the R.A.F. in December, 1923, with a permanent commission and seniority of December, 1923.

He was posted to No. 1 F.T.S., Netheravon, for flying instruction. In April, 1924, he was posted to No. 9 (Bombing) Sqdn., Manston, and in June of the same year was promoted to the rank of Flg. Off. He joined the 502 Sqdn., stationed at Aldergrove, Co. Antrim, on its formation in May of this year.

Mr. Evans was middle-weight boxing champion of the Northern Universities for two years.

McGRATH.—On Sept. 25, at Duxford, Cambs., as the result of a collision in the air, Thomas James McGrath, Sjt. Plt., No. 29 (Fighter) Sqdn., R.A.F.

Sjt. McGrath was 28 years of age and came from Devizes.

MALONEY.—On Sept. 22, at the Curragh, Major Thomas Maloney as the result of an aeroplane accident during manœuvres in the Irish Free State.

Major Thomas Maloney was the Commandant of the Flying Service of the Irish Free State. He was well known in this country having paid numerous visits to the Aircraft Disposal Company Ltd. (now A.D.C. Aircraft, Ltd.) for the purpose of selecting flying stock for the Free State. On occasions he has flown machines from Croydon to Baldonnel.

Major Maloney was a native of the County Limerick. Before the Great War he was a surveyor of taxes, Inland Revenue Department. He served with the Yorkshire Regiment, and afterwards became a cadet in the British Air Force. He joined the Free State Army in October, 1922, and served as pilot in the Air Force. He was officer commanding the Air Force at Fermoy during the Civil War.

THORPE.—At Filton, Bristol, on Sept. 23, as the result of a collision in the air, George William Thorpe, Flg. Off., Reserve of Air Force Officers.

Forthcoming Marriage.

BILNEY—PERREN.—The engagement is announced between Flg. Off. C. N. H. Bilney, R.A.F., second son of Mr. and Mrs. W. A. Bilney, Monks' View, Newbury, Berks, and Miss Nellie Garner Perren, elder daughter of the late Mr. Thomas Perren and Mrs. Perren, of Villa Rosa, Wilts.

TURNER—FORD.—The marriage arranged between Mr. Michael H. Turner, late Captain, R.A.F., son of the late Sir George Turner, M.B., and Lady Turner, and Daisy Mainwaring Fair, only daughter of Canon Lockett Ford, of St. Patrick's Cathedral, Dublin, and sister of the Rev. S. Ford, vicar of All Souls', South Hampstead, will take place on Nov. 4 in Hong Kong.

VENABLES—ROSS.—An engagement is announced between Plt. Off. Gilbert David Venables, R.A.F., third son of Mr. and Mrs. H. S. Venables, of Kinderton, Mattock Lane, Ealing, and Eileen Mary, only daughter of Mr. and Mrs. W. J. Ross, of 12, Waldemar Avenue, Ealing.

Marriages.

AVERY-FOX—LEE.—On Sept. 11, at the Cathedral, Bombay, Healey W. Avery-Fox, R.A.F., Quetta, only son of the late Mr. H. W. Avery-Fox, I.C.S., of Calcutta, and Mrs. Avery-Fox, to Florence Edith, elder daughter of Mr. and Mrs. J. R. Lee, of Edwalton Grange, Notts.

CLEMSON—HANDS.—The marriage took place on Sept. 19, at All Saints' Church, Leamington Spa, between Flt. Lt. A. W. Clemson, O.B.E., D.S.C., R.A.F., son of Mr. John Clemson, of Ecahurst, Wellington, and Eileen, daughter of Mr. and Mrs. Arthur Hands, of Dinard (late of Johannesburg).

DANGER—WILLIS.—On Sept. 12, at Christ Church, Turnham Green, by the Rev. T. W. Moulton, M.A., Eric Oscar Danger, A.C.G.I., A.M.Inst.C.E., A.M.I.M., and Cy.E., etc. (late Lieut., R.A.F.), to Doris Louisa, second daughter of Mr. Edward and the late Mrs. Louisa Willis, of Chiswick.

Births.

SCOTT.—On Sept. 23, at "Pinecroft," 1, Adeline Road, Boscombe, the wife of Flt. Lt. C. L. Scott, D.S.C., R.A.F.—a daughter.

SIMMONDS.—On Sept. 25, at Holmfels, Woolston, Hants, to Gladys, wife of Oliver E. Simmonds—a daughter.

STRUGNELL.—On Sept. 16, at Gezireh, Cairo, to Sq. Ldr. and Mrs. V. Strugnell—a son.

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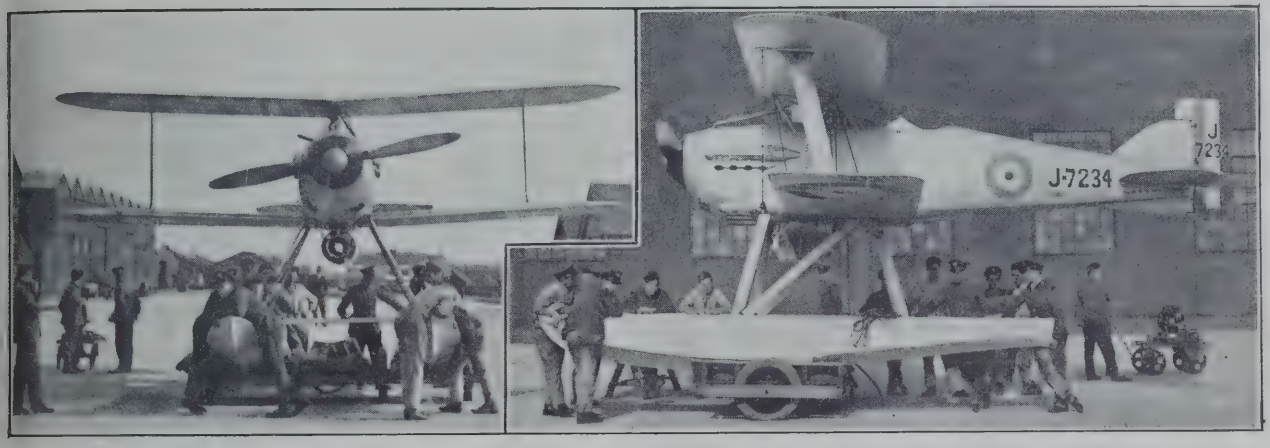
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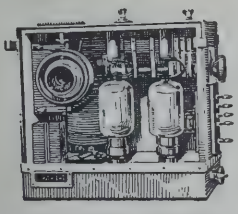
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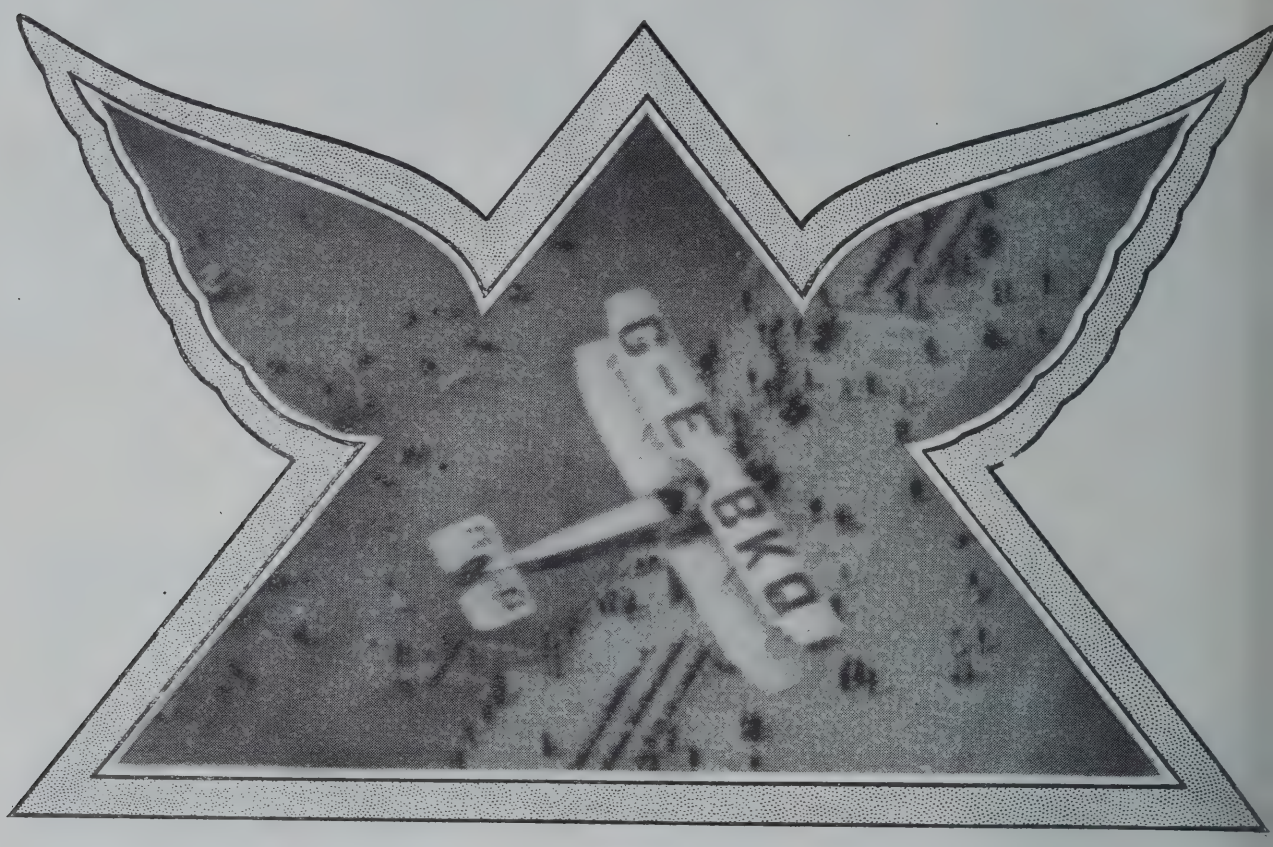
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ON AMERICAN AIR AGITATION.

No excuse need be offered to the regular readers of THE EROPLANE for publishing in this issue the pages on American viation which follow these notes. But to more casual readers certain amount of explanation may be advantageous.

Regular readers know that in considering the problems the next war we on the staff of this paper regard the nited States and the British Empire as one and the same ing. Therefore any war problem which affects the United tates is equally of importance to this country. And, beuse the Air Force of any nation is not only the Spear-head its Attack but also its First Line of Defence, anything hich affects the Flying Services of the United States is of ie first importance to this country and should be of intense terest to all British subjects who are concerned with aviaon whether as aviators or airmen of the R.A.F. or as memers of the British Aircraft Industry.

THE WAR AREAS.

The next war may begin in Central Europe, in which case ir Air Force together with the Expeditionary Force of the rmy will have to go to Germany to hold up the Russian dvance while Germany constructs an Army and an Air orce. While our hands are thus tied Japan may seize the pportunity to make her big effort to dominate the Pacific, elying on the fact that with our Air Force fully occupied in urope we can do little to help our friends the Americans and ie Dutch to protect the Philippines and the Dutch Oil slands because whatever aircraft our Fleet Air Arm can roduce will be tied hand and foot to the naval base at Singaore and to whatever ships we send to guard Australia.

In any case we should probably not go into the war against apan for a year or so after the fighting between Japan and merica had begun. We should have to wait for a definite *asus belli* with Japan just as the United States had to wait r a rational excuse for entering the War against Germany s our allies in 1917.

On the other hand Japan, with all the arrogance of a ountry which has come to be regarded as a first-class power n land and sea without ever having had to fight her way that position in a first-class war, may take it into her ead to strike for the domination of the Pacific without aring whether Great Britain will take a hand in the proeedings or not. Even in that case in the absence of a utually defensive treaty with the United States we shall ave to wait at least twelve months before finding an excuse join America.

Then when we have at last plunged into the war in the acific, and have sent the bulk of our Air Force to hold the ne between Singapore and Port Darwin and to help the utch and the Americans to drive the Japanese out of the oil lands and the Philippines, Russia may seize the opportunity to start that westward walk to Paris which is regarded by the growing military aristocracy of the Red Army as being the goal of their ambitions as well as their chief reason for being.

OUR NATURAL POSITION.

In either case we have to fight alongside the Americans on land and sea and over both. And consequently the state of the American Air Services at any moment in the course of history is of prime importance to the Royal Air Force.

If the American Air Services are in a bad state, as undoubtedly they are at present when one considers how small they are in relation to the enormous country which they have to protect, then the task of the Royal Air Force in the coming war will be all the greater.

On the other hand if the American Flying Services, thanks to Colonel Mitchell's agitation, increase to an adequate size and become accordingly efficient before the outbreak of war, then the Air Staff's problems will be lightened in that we shall be able to use our Air Force more or less for our private ends without having to split it up in order to help the American Army or Navy as may be required.

THE TRADE VIEW.

From the purely Trade point of view there is the interesting position that if the Pacific war comes first, the British Aircraft Industry will be able to sell air-war material in vast quantities to the United States at a vast profit for a year or so before our own war begins. And the increase in personnel in the factories and the increase in the size of the factories themselves will result in our being the better able to tackle the task of equipping our own enormously augmented Air Force when it goes to war.

Contrariwise if we begin our war in Europe first, we shall have to increase our factories and their personnel at our own expense first and shall not be able to have the fun of war-profiteering at the expense of a friendly nation while ourselves remaining for a period at peace.

Personally one has a most sincere affection for the assorted Nordic peoples who live in America and call themselves citizens of the United States, and one knows that one's numerous friends in America will understand one's mental attitude when one says that one hopes that America will start her war in the Pacific first, because about twelve months of war-profiteering at the expense of the United States may do something to adjust the balance of war debts incurred during the War 1914-18 which has had the result of leaving us deeply indebted to America.

Just about a year of supplying aircraft and other war material to the United States would not only bring back the English gold which has found its way to America, but would also wipe off most of the debt which we owe to the States. And then morally and financially we should be able to wade



OUR RIVALS.—The Curtiss R.3.C.1 racer before its first flight. Its mean speed as a land machine is 265 m.p.h. and as a seaplane it should do 230-235 m.p.h.



AMERICA'S AIR LEADER.—Lieutenant-Colonel William Mitchell, who has led the agitation in favour of an adequate and separate Air Force for the United States.

into the war hand-in-hand on a level with our American brethren.

Thus it may be seen that America's affairs are very much our affairs and consequently the agitation which is still in progress in the United States for the raising of an adequate Air Force is of quite as much interest to us as it is to any citizen of the United States.

THE LEADER OF REFORM.

Colonel Mitchell, who is the head and forefront of the agitation, was a Brigadier-General and held the position of second in command of the U.S. Army Air Service when one was in America last year. At the end of his term of service in that position he reverted to his substantive rank of Lieutenant-Colonel. He has had quite a considerable amount of actual war experience and one believes that it is historically a fact that the combined American, French and British air force which he commanded during the American offensive in the Ardennes in 1918 was in fact the biggest force of aircraft which ever crossed the fighting line under the command of one single officer.

Not only did General Mitchell prove himself to be a born leader of men in war but he has shown himself to be a thoroughly competent administrator. Also he is himself one of the best pilots in the United States.

Whenever a new type of machine was produced if the was any argument about its flying ability General Mitche as he then was, had the habit of going down to the fiel getting into the machine straightaway and flying it himse and then telling the antagonists and the supporters of th machine exactly what he thought about it. He even fle one of the Pulitzer Racers a couple of years ago just to sho people that what some of the critics said was a dangero game was at any rate safe enough for the operative Chief the U.S. Army Air Service. In fact he actually put up world's speed record officially on this machine.

All of which, one may say, is a thoroughly sporting effo for a man of approximately fifty years of age.

It is true that Colonel Mitchell's method of agitation ar method of attack on his superiors is not such as would b considered proper for an officer of the British Army. H method of statement and his political operations seem to v in this country very like those of Mr. Pemberton Billin when he conducted his air campaign in 1916. But to th credit of Mr. Pemberton Billing it must be said that he di far more to produce the public feeling which has resulted i our having a separate Air Force to-day than did all the qui and peaceful advocates of air reform put together.

In all great reforms there must be some fanatic to be cruc fied, burnt at the stake, or shot against a wall, metaphorical if not physically. And when the fanatic has been decentl buried then the quiet reformers get what they wanted a though they would never have got it except for the ove statement of the fanatic.

Once in a while the fanatic escapes being executed an rises to still greater fame and fortune. Such one imagine to have been the case with Julius Cæsar and Napoleon Bona parte and a few others. And such one hopes will be the fat of Colonel Mitchell. Not that one hopes to see him becom Emperor of America, but one does hope to see him leadin the great American Air Force to victory in the next war.—

C. G.

The following articles are taken as they stand fro America's leading aeronautical paper *Aviation*. The firs short article expresses the opinions of Mr. Lester D. Gardne to whom American aviation owes a great deal more tha it realises as yet for so much good as there is in America aeronautics. The remaining pages are Colonel Mitchell' own statement.

TAKE AIRCRAFT OUT OF POLITICS.

Boards of experts will give their opinions as to the technical reason that caused the loss of the *Shenandoah* and the PN9 No. 1, but n investigation will probably be made as to how much of these losses wa due to the greatest danger to our air development—politics an propaganda. The political pressure that has been brought to bear o our air services for the use of government aircraft for propaganda purposes will, when it becomes known to the country and Congress cause a revulsion of feeling that will shift the enquiry from technica matters to what should be termed the real cause of some of th recent aeronautical accidents. The Army and Navy are publicity mad, and no risk is too great to take to spread propaganda that may have a favorable effect on appropriations. When these efforts mis carry, no time is lost to spread more propaganda that fits in with antiquated military and naval ideas.

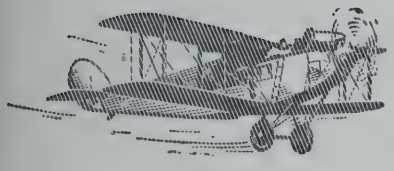
The Secretary of the Navy, only a few hours after the airship had floated to the ground and before receiving any reports from a technical investigation, and when the whole country was horrified and mystified used his statement concerning the wreck to spread propaganda for the old naval ideas. He is quoted as stating,

"In view of the experience of the Navy planes in the Arctic expedition, the failure of the Hawaiian flight and the 'Shenandoah' disaster, we have come to the conclusion that the Atlantic and Pacific are still our best defenses. We have nothing to fear from enemy air craft that is not on this continent."

When the last trip of the *Shenandoah* is considered from this view-



FOR THE PULITZER AND SCHNEIDER TROPHIES.—A side view of the new American Curtiss R.3.C.1 Racer which with a dive and a slight following wind did 302 m.p.h.



When you buy the Napier "Lion" you are purchasing a *proved* type of aero engine—a type which has come through its experimental stage successfully.

There has been over eight years' consistent development and testing with the Napier under all conditions—Military and Naval Services, Commercial and Racing.

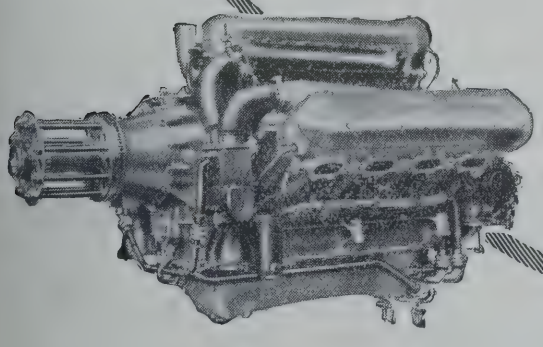
Among the achievements to its credit are :—

One engine in use by Imperial Airways has completed 170,000 miles and is still in service.

Major Zanni flying a Napier-engined Fokker machine reached Tokio from Amsterdam (10,000 miles) in 22 days' flying, without having to touch his engine.

The last three Aerial Derbys have been won by Napier-engined Gloster machines.





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point, the ultimate responsibility for this great loss to the Navy may perhaps be better understood. The trip was originally planned to bring out the crowds while President Coolidge was visiting Minnesota and create a favorable impression for the Navy and the Administration in the most doubtful section of the country, politically. When the *Los Angeles* failed to make the trip at a time of year that airship experts knew was dangerous, the *Shenandoah* was routed to cover the middle west and visit Detroit with the hope that Henry Ford could be persuaded to build an airship hangar at Dearborn to supplement his mooring tower.

It can be stated with direct knowledge, not hearsay, that Commander Lansdowne, who wanted to demonstrate the naval value of the *Shenandoah* with the fleet, the real purpose of the investment of over $15,000,000.00 of public funds in the Lakehurst projects, was so pressed by schedules made in Washington, to attend Governors' meetings in Maine, tow targets for anti-aircraft propaganda and make the Western propaganda trip that he was disheartened. If the files of the Navy Department are ever made public by a Congressional investigation, the political pressure exerted to have the *Shenandoah* visit various sections of the country will be known. And then it can be determined how much of its time the only airship that this country had that could be used for naval uses was being used for propaganda purposes, and how much with the fleet.

The West Coast—Hawaiian Flight was planned, as everyone in the service knows, to offset the impression created by the Around the World Fight. With the need for increased appropriations, some outstanding achievement had to be planned before Congress met in December. Two seaplanes were built at the Naval Aircraft Factory and one by the Boeing Company. The desire to have the government built seaplanes get the credit of this longest non-stop flight over water caused the Navy to have only ship protection and not protection from the air that would come from having three planes flying together as was done in the Round the World flight. Certainly no one will believe that the delay of the few days required to replace the engines in the Boeing plane would have imperiled the success of the trip.

If the salvage that is secured as the result of an investigation of these experiences is the taking of aircraft out of politics, and stopping their uses for propaganda, those who are looking forward to the coming of commercial aviation will feel that at least one lesson has been learned. The Air Mail carries only the mail, and has won the respect of the whole world. It lets the Army and Navy do their experimenting in races, political flights, and appropriation propaganda.

COL. MITCHELL'S STATEMENTS ON GOVERNMENT AVIATION.

These contain the assertions on which he expects to be Court-Martialed.

So that those who did not read the complete statements made by Col. William Mitchell may have them available, they are reprinted. They represent the most daring indictment of the War and Navy Departments ever made by an officer. Many of the assertions are certain to be challenged. They will undoubtedly form the basis of a new Congressional Enquiry.—ED.

"I have been asked from all parts of the country to give my opinion about the reasons for the frightful aeronautical accidents and loss of life, equipment and treasure that has occurred during the last few days. This statement therefore is given out publicly by me after mature deliberation and after a sufficient time has elapsed since the terrible accidents to our naval aircraft, to find out something about what happened.

"About what happened, my opinion is as follows: These accidents are the direct result of the incompetency, criminal negligence and almost treasonable administration of the national defense by the Navy and War departments. In their attempts to keep down the development of aviation into an independent department, separate from the Army and Navy and handled by aeronautical experts, and to maintain the existing systems, they have gone to the utmost lengths to carry their point. All aviation policies, schemes and systems are dictated by the non-flying officers of the Army or Navy, who know practically nothing about it. The lives of the airmen are being used merely as pawns in their hands.

"The great Congress of the United States, that makes laws for the organization and use of our air, land and water forces, is treated by these two departments as if it were an organization created for their benefit, to which evidence of any kind, whether true or not, can be given without restraint. Officers and agents sent by the War and Navy departments to Congress have almost always given incomplete, miserably or false information about aeronautics, which either they knew to be false when given or was the result of such gross ignorance of the question that they should not be allowed to appear before a legislative body.

Airmen Bulldozed.

"The airmen themselves are bluffed and bulldozed so that they dare not tell the truth in the majority of cases, knowing full well that if they do they will be deprived of their future career, sent to the most out-of-the-way places to prevent their telling the truth and deprived of any chance for advancement unless they subscribe to the dictates of their non-flying bureaucratic superiors. These either distort facts or openly tell falsehoods about aviation to the people and to the Congress.

"Both the War and Navy departments maintain public propaganda agencies which are supposed to publish truthful facts about our national defense to the American people. These departments, remember, are supported by the taxes of the people and were created for the purpose of protecting us from invasion from abroad and from domestic disturbances from within. What has actually happened in these departments is that they have formed a sort of union to perpetuate their own existence, largely irrespective of the public welfare, and acting, as we might say, about a commercial organization that has entire control of a public necessity 'as an illegal combination in restraint of trade.'

"The conduct of affairs by these two departments, as far as aviation is concerned, has been so disgusting in the last few years as to make any self-respecting person ashamed of the clothes he wears. Were it not for the patriotism of our air officers and their absolute confidence in the institutions of the United States, knowing that sooner or lat existing conditions would be changed, I doubt if one of them wou remain with the colors—certainly not if he were a real man.

"The story is a long one, beginning practically with the inception aviation in this country, so I shall mention only a few things in co nection with the disgraceful performances which have occurred th summer.

"Seeing no progress in our efforts, which had been continued f years, to convince or even seriously interest the governing bodies the War and Navy departments to better our aeronautical conditio we were stirred to further action by the killing of Lieutenant Piers and Captain Skeel in the dilapidated racing airplanes during la October's air meet.

Races for Propaganda.

"This was caused by an arrangement between the Navy and Arm that the Navy should take the races one year and the Army shou take them the next year, thereby equalizing propaganda, not servic Instead of building new airplanes, our men were given the old crat to fly at those terriffic speeds. Of course, they came to pieces, as th were designed for only one race two years before. This was don in spite of the fact that we had sufficient money to build new shi according to entirely advanced patterns and new safety factors.

"We in the air fraternity then and there decided to put the iss squarely up to Congress and the people. We received an immedia response from the people and Congress, because they saw the right our proposition, which was to make a single department of nation defense, with sub-secretaries for the land, the air and the water, ea to have an equal voice in our national defense system. The gener scheme, by the way, has been adopted by practically every civiliz country in the world. Had this measure reached the floor of t House of Representatives last winter it probably would have pass by a large majority.

"Congress also provided that not less than $50,000 out of mone already appropriated should be spent for the aerial bombardment battle ships and shipping board vessels while under their own stea and moving, so as to set at rest any doubt of aircrafts' ability destroy and sink any seacraft which floats on the water.

"It was evident then that the American people were awakening the necessity for a change and that if this change were to be prevente by the War and Navy departments, that they must act at once. Wha was the result. Steam was gotten up by the Navy on the one han to disprove and deprecate the value of air power and show the valu of the surface vessels and battleships, and on the part of the Arm to fool the public as to the value of anti-aircraft, cannon and machi guns. Any operations by the air service to sink the ships, as pr vided for by the law of the land, were stopped. Now what have t Army and Navy done to show that the existing obsolete syste should be maintained?

"First, the great Pacific naval maneuvers—the main features of the were the assembling of a fleet of some 148 surface vessels in t Pacific, the parade of our Pacific coast and entrance into San Francis harbor and then the trip to Honolulu. Press representatives and co gressional committees galore were handled, fed and entertained accor ing to the good old Navy's propaganda system. It was heralded tha the Navy had taken the Hawaiian islands.

Outline of War in the Pacific.

"Now, let us see what actually would have happened had there bee war. Suppose that we had been at war with a Pacific power and th fleet of surface vessels had been in San Francisco harbor. Instantl the Pacific power's submarines would have planted all entrances to t harbor with mines, would have covered all the approaches with thes death dealing engines.

"If the surface vessels ever got through these, the whole Pacif ocean would be districted off into squares and to each of these district submarines would be assigned for the purpose of tracking the surfac ships and attacking them.

"These ships would be under constant attack of gunfire from sub marines that can carry any size cannon and use projectiles containin gas, high explosives or armor-piercing shells. They use under-wate torpedoes which not only hit the side of the ships but will hit the bottom and can produce gas clouds which will completely envelop an fleet.

"If any vessels of the fleet survived the submarine attacks, crosse the sea and came within hundreds of miles of the hostile coast, the would be sent to the bottom forthwith by aircraft.

"If the Pacific maneuver showed anything conclusively, it was tha aircraft acting from land bases can destroy any surface fleet comin within their radius of operations. This almost had been amply prove by our bombardment tests in 1921.

"As far as Honolulu is concerned, it is not a position of decisiv influence in the control of the Pacific. Its value consists in being a excellent submarine base to act against hostile surface seacraft and sub marines. The control position of the Pacific is our own territory Alaska and the peninsula of Kamchatka, opposite. It is reported tha from $50,000,000 to $80,000,000 has been spent just for this Pacif parade of our Navy—more properly, the vessels belonging to the Unite States because in fact, it is no navy in the modern conception of th term. What would this amount applied to development and improv ment of airplanes and submarines have meant?

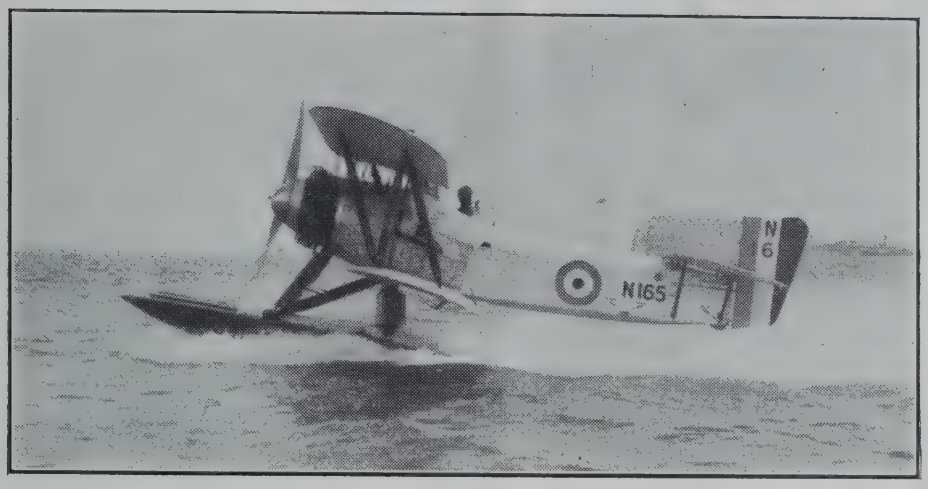
The West Coast—Hawaiian Flight.

"Next, to get publicity and make a noise about what it was doin with aircraft, this so-called Hawaiian flight was arranged for. Eve if it had been successfully made to Honolulu, it would have mean little, either commercially or strategically, compared to what a flig to Europe or Asia would. Three airplanes were built to participat in it. Those showed nothing novel in design and were untried for thi kind of work. One never got away from the Pacific Coast, anothe flew a few miles out and was forced to land in the water, and one wa lost on account of being out of gas somewhere on the high seas.

"Patrol vessels were stationed every 200 mi., a distance entirely to far apart for an experimental flight of this kind, with such primitiv flying machines as the PN9's are. Double or triple this number vessels should have been there. In fact, the whole Pacific fleet shoul have been placed there, instead of joyriding around the Antipodes.

"As it was, when this slow-moving airplane, going about 75 m.p.h.

R·A·F· TYPES — No 6.





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was first sighted from the destroyers, the destroyers should have steamed out full speed in the direction in which the airplane was going. This would not only indicate the proper course to the plane, but would place the destroyer closer to it in case of accident. As the airplane was moving at only about 75 m.p.h., the destroyer could have been speeded up to within 30 mi. of that speed.

"Why, if they expected to run short of fuel, as indeed they might, did they not make arrangements for refueling the airplane while it was in the air, by another airplane, as we have repeatedly done? Why did they carry a crew of five when the weight of two men in fuel might have carried the ship through?

"What happened to this really good-for-nothing, big lumbering flying boat, when its brave navigators began to run short of gas, over a heavy sea? The probability is that they held her up as long as they could. As they neared the water, caught by a sudden gust, she might have been thrown into a stall and gone down straight under the water. Hope was that some passing fisherman may have picked them up as our Lieutenant Wade was picked up in the North Sea. Our navy did not find him either. All they did was to smash his plane when it was turned over to them by the fishermen. After all, the Hawaiian Islands are not a vital area with our present methods of national defense.

The "Shenandoah" Disaster.

"Then the disaster to the *Shenandoah*—killing Captain Lansdowne, the last of our really experienced airship captains—a splendid man, with his companions, following in the wake of Captain Mabry and Captain Maxfield, our airship commanders who have gone before.

"I do not know exactly what happened to the poor *Shenandoah*. She was an experimental ship, built in this country. I believe she was about 50 per cent. overweight in her structure. She had broken away from her mooring mast—an inefficient way of handling airships, anyway—last spring, and her whole structure was badly strained.

"I believe that the number of valves in the gas bags containing the helium had been diminished so as to save helium gas, which is expensive in money, but which made the ship more dangerous to the crew. The *Shenandoah* was going west on a propaganda mission for the Navy Department to offset the adverse publicity caused by the failures in the Pacific and Arctic. Note: Propaganda and not service is the keynote in these undertakings.

"What business has the navy over the mountains, anyway? Their mission is out in the water—not only out in water, but under the water, out of sight, away from the land. That is why we have the navy.

"No accurate meteorologist arrangements are available for aircraft in this country. The Weather Bureau is under the Department of Agriculture and primarily organized to turn out weather reports affecting onions, cabbages and other crops. While this is very necessary, it is a complete failure as far as we are concerned. I say this after having flown across mountains and bucked their storms hundreds of times.

The "Shenandoah" Overweight.

"The *Shenandoah*, 50 per cent. overweight in her structure, had members strained last spring, possibly some of them disintegrated from the action of the non-freezing compound in the radiators of her engines, wherever this liquid dropped on them, and with the valves in her helium gas bags reduced, strikes a storm. She is caught in an upcurrent of air. Due to her excessive weight her reserve buoyancy is low.

"She is carried high up by this current and her gas bags begin to expand, due to the altitude. The crew valves her in an attempt to allow the gas to escape, but the automatic valves, reduced in number, do not allow the escape fast enough; the pressure of the expanding gas on the structure tears the ship to pieces. Some of her crew go to eternity. Those who do not escape by miraculously good fortune. No notice of the storm was received in time to avoid it. Her survivors are muzzled by the Navy Department pending a whitewash board. Are these things so, or are they not? I am down here in Texas and have not all the data at hand, but I am sure the facts are practically as stated.

"What results? The Navy Department announces that this shows that America cannot be reached by hostile aircraft. What has that to do with it? The way that America will be reached from Asia is by the way of Alaska. The water that has to be crossed is scarcely wider than the English Channel. The route from Europe is by the same course that the round-the-world fliers took, to Iceland, Greenland and North America, whenever a country gets powerful enough to undertake the operation.

"What has the loss of a seaplane near Honolulu and an airship over the mountain to do with it?

"The impression is given to the public at large that the *Shenandoah* was a modern ship, properly constructed, properly operated and completely equipped. This was not the case. It shakes the faith of the people in airship transportation because they are not given the exact facts on the subject. This is not an argument necessarily for the maintenance of many airships by the government, but it is a demand for the facts in the case, so that we will not be hindered in the commercial development of this splendid aircraft on account of the accident to an airship due to incompetence in the Navy Department and the criminal negligence in the ordering of this trip. If we took the safety valve of a locomotive off to save water in the desert, and it blew up, killing the engineer and passengers, would we say that railways were no good in deserts and go back to camels?

Ordered the Los Angeles.

"An interesting sidelight might be thrown on the development of airships in this country. When I came back from the war in 1919 I attempted to get warships [One believes this to be a misprint for "airships"—C. G. G.] for the purpose of making them into airplane carriers. That is, having airplanes take off from them and land on them, so that they could get out in the middle of the ocean if necessary and attack hostile vessels, in case of war. I obtained permission immediately from the then chief of staff, General March, and the then Secretary of War, Secretary Baker. I sent Major Hensley to Europe with money to get the ships. We had even gone so far as to order the gasoline to Germany for the voyage of the ships to this country.

"Mysteriously the order was rescinded—all work was stopped—it was said at the time that it was against the provision of the treaty, which I do not believe was the case. Work had already been begun on the frames by the Germans. This was the ZR-3, rechristened the *Los Angeles*, which the navy obtained recently, six years after I ordered it. What has it been used for? Nothing but parading around the country. It is evident that whenever a warship [Again a misprint for "an airship"—C. G. G.] is developed as an airplane carrier, the necessity for any naval surface airplane carrier may be done away with. Is this the reason the navy has the *Los Angeles*?

"The Germans are the only people who have had real experience with airships. They had many a disaster before they learned how to handle them. I have seen German Zeppelins years ago in terrific storms. A storm has little effect on an airship properly constructed and ably handled."

The Arctic Expedition.

"What other things has the navy done this summer? After borrowing some airplanes from the army that were entirely inadequate to the work in hand they went on the Macmillan trip to the Arctic. More propaganda! As far as can be learned from a distance, they had a cat-and-dog-fight all the way up and back, between Macmillan, the pilots and the Navy Department, and, of course, got nowhere and did nothing. Is there an airman who does not know that with the little jitneys they took up there the pole could not be reached? Another example, says the Navy Department, of the incapacity of aircraft.

"At last the great anti-aircraft tests took place. A battleship goes out into the sea. She takes the airship *Shenandoah* and has her tow target at thirty-three miles an hour at a known altitude, in broad daylight and on a certain course. Some officers have told me that the dirigible was heading into the wind of an intensity of many miles an hour and that therefore the target really was almost standing still in the air. The navy shoots at it all day long in this position and hits it a few times and publishes to the people of the United States the wonderful results obtained to impress them with the fact that battleships can be protected by anti-aircraft guns, which is absolutely and entirely false.

"What is our navy for? Presumably it is to control lines of sea communication on the high seas. What is it actually? It is entirely and completely outpointed by Great Britain in the Atlantic. What can it do across the Pacific as at present organized? Nothing—against an insular Asiatic power whom you all know.

Naval Costs.

"The Navy has about $1,500,000,000 invested in navy yards. The upkeep and depreciation of these amounts to about $150,000,000 a year. How many of these are useless and how many of them are of any profit? Probably not many. Suppose we took $50,000,000 of this and applied it to the development of aircraft and submarines under competent airmen and submarine men? What could we do with it?

"Every time a battleship is built, the ship itself, when it is completed, may cost from $50,000,000 to $75,000,000. It has to be protected by submarines, destroyers, cruisers and aircraft, the total cost of which is around or over $100,000,000, so that every time a battleship is built the expenditure of $100,000,000 is necessary. I believe a battleship today is a useless element in the national defensive armament of the United States. Suppose we had even one half of the cost of a battleship to use in the development of our aircraft and submarines. These are only a few of the things which must be brought up before the people and the coming Congress.

"The navy, to maintain its position, keeps asking for more aircraft which it cannot use legally, because the legal defense of the land is entrusted to armies. In spite of the legal restrictions, however, but to keep control of aviation and not let it get away, the navy department continually gets more money from Congress by its Washington lobby so as to keep the political support of the aircraft manufacturers and possibly some others interested in them.

New Aircraft Carriers Obsolete.

"This year the navy's estimate for the aircraft amounts to $37,360,24[illegible]. They only have one aircraft carrier, the *Langley*, which can go about half as fast as a battleship, and which is an obsolete collier. It can hold 36 small airplanes. There are building two aircraft carriers which can hold 60 to 70 planes. These are practically obsolete before they are completed.

"Where is the $37,000,000 for aircraft going? It is going into the land aircraft which have nothing to do with the navy's operations on the seas and which will be used as a political lever for the maintenance of their existing system.

"The War Department, that now is entrusted by law with the aerial defense over the land areas of the United States and its possessions including the protection of navy yards, asks for $24,582,000. Consider how foolish this is. The navy, an organization charged with going to sea and which must operate from surface vessels, which as a matter of fact are practically obsolete now, and which will afford no real protection to the country in case of an air attack, asking for two-thirds more than the army does, which acts from land bases and is specifically charged with the defense of the land areas. The amount allotted to the navy for new aircraft is three times as much as the army.

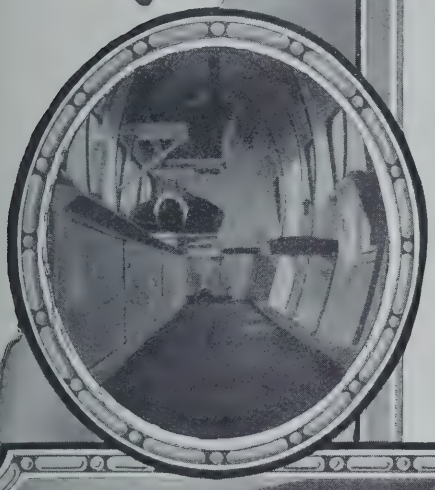
The Anti-Aircraft Tests laughable.

"Now, let us turn to the War Department. The War Department has done nothing this summer to develop air power and has undertaken to prove by tests that anti-aircraft guns can protect cities, which is known everywhere to be false. They have fixed up a scheme to give constructive hits when the guns firing do not hit the targets at all. The firing has been at targets towed at a constant altitude, over courses which have now been flown hundreds of times, at greatly reduced speeds, and never in excess of seventy-five miles an hour. Even this was only because the wind was helping the plane along and under weather conditions that have been ideal. In spite of this preparation the results have been laughable.

"As an example of one of these performances, the War Department has taken the lid off for publicity in the Second Corps area—that means around New York—with the result that the Coast Artillery tells the papers the story in greatly exaggerated terms, whereas the chief of air service has been completely muzzled. An interesting example of some of the anti-aircraft target practice was the testing of the listening device for aircraft at Camp Dix, July 27.

"The umpire had told Captain Hall, commanding the airplane bombers at Mitchel Field, that in the next anti-aircraft test he was at liberty to fly under conditions which would be used in war. Captain Hall informed the umpire ahead of time that he would glide into the

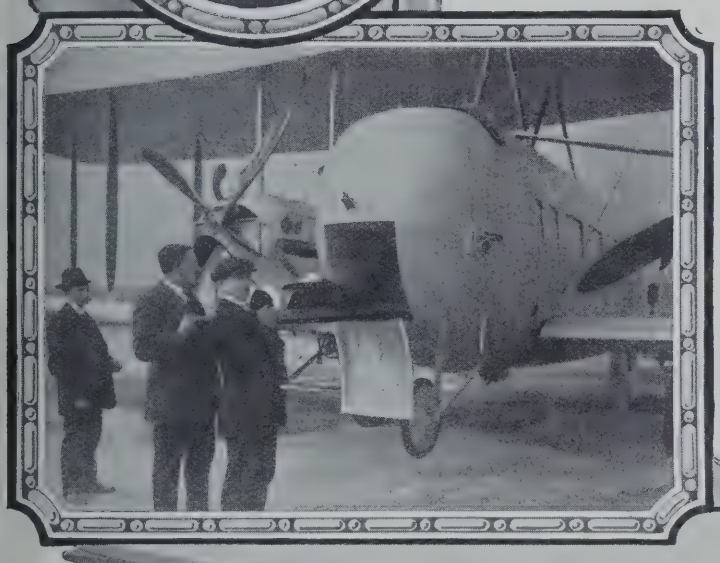
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target. Before this, the Coast Artillery had all their practice with planes that had flown over at a fairly constant altitude and with their motors open.

"The night of the test planes got their proper altitude, played around a little just out of range of the searchlights and just within range of the listening devices on the ground. The artillery thought that this was easy because they picked up the planes far off and plotted their course absolutely; but all of a sudden sounds from the airplanes stopped. Five or ten minutes later, the bombers dropped their bombs directly on the target. All around not a sound had been heard before this.

"The fury of the ground officers, artillery officers and others was tremendous. The air service had not acted fair and had fooled them, all of which a kind enemy, of course, in war would never do. Discussion even went so far that it had to be pointed out that it was provided in our bombardment manual to attack a place in this fashion. This is only one instance of the ridiculous performance.

"So far practically the only bombardment airplanes we have in this country have been used up towing these targets for ground shooting which other airplanes could just as well have done. The actual cost out of air service funds appropriated will be approximately $200,000 by the time they are completed this fall.

Coast Artillery Spent Two Billions.

"Why are things done this way? The coast artillery sees that it is bound to be greatly reduced on account of the fact that aircraft are a positive coast protection. The coast artillery now has about ninety-two stations. For the ten years prior to 1920, about $2,000,000,000 were spent on coast defense—not two millions but two billions. What good are these coast defences? None—except those in the immediate vicinity of large cities, where a submarine might emerge at close range and plant a few shells in the city.

"What could the saving do on these useless expenditures if used by the troops of the mobile army stationed in Texas and other frontier points, living in shacks, unequipped with modern conveniences, cut down on every activity and rendered almost incapable, in case the constitution is menaced, of putting down insurrections or executing the laws, when all other means fail and patrolling our frontiers and holding our insular possessions—what would only a small part of this tremendous expenditure mean in the development of aircraft?

"Not one heavy bomb has been dropped by the air service line units in target practice for two years. Only about four or five modern sights are on hand with the bombing groups; and to-day I, who know our personnel better than any living man, can only put my hand on two perfectly capable bombardment crews to handle our aircraft in case we are attacked.

War Department Studies Flying Pay.

"The other thing that the War Department has done this summer is to study how the flyers' pay could be reduced or taken away from them. Think of it, the whole effort of the War Department during the summer was to fool the people into thinking that aircraft cannon are a protection and to keep the rightful flying pay away from the pilots.

"To make a long story short, we are utterly disgusted with the conduct of our military affairs applying to aviation. Our pilots know they are going to be killed if they stay in the service, on account of the methods employed in the old floating coffins that we are still flying. Those pilots who still remain have held on so long that if they got out they would starve. They don't dare open their mouths and tell the truth, because they and their families might be booted out to some obscure place. No finer body ever existed in the make-up of our country than these men.

"There are many able men in the Army—these should be developing the ground army in accordance with the needs of the nation. There are many able men in the Navy, but the bureaucracies that both of these national services maintain in Washington have passed all bounds of national decency. They are deluding the public, sacrificing our national defense and not only wasting the money of our citizens, but the lives of its ablest men—our flying officers.

Public Must Know Truth.

"This condition must be remedied. It is not in the field of partisan politics, it concerns us all. The American people must know the facts and with their unfailing common sense and ability, they will surely remedy it.

"As far as I am personally concerned, I am looking for no advancement in any service. I have had the finest career that any man could have in the armed service of our United States. I have had the great pleasure of serving in all our campaigns from the Spanish War to the present and of commanding the greatest air forces ever brought together on the planet. I owe the government everything—the government owes me nothing. As a patriotic American citizen, I can stand by no longer and see these disgusting performances by the Navy and War Departments, at the expense of the lives of our people and the delusion of the American public.

"The bodies of my former companions in the air moulder under the soil in America, and Asia, Europe and Africa—many, yes, a great many, sent there directly by official stupidity. We all make mistakes, but the criminal mistakes made by armies and navies, whenever they have been allowed to handle aeronautics, show their incompetence. We would not be keeping our trust with our departed comrades were we longer to conceal these facts.

"This, then, is what I have to say on this subject and I hope that every American will hear it."

Second Statement.

We must apply a remedy to the conditions existing in our whole national defense system, and in our aeronautics in particular. Preliminary steps should be taken at once and in December decisive action by Congress to put these measures into law.

Nation Needs Department of Defense.

We would consolidate our whole national defense under one head and hold one man responsible for the whole thing; under him should be three subsecretaries, one for the army or the land, one for the navy or the water and one for our aeronautics.

Policies pertaining to our national defense should be recommended by the Secretary of National Defense to the President upon the advice of the three subsecretaries. Having three subsecretaries would insure there being no deadlock, as often occurs at the present time between the army and navy. All supplies common to the three services shou be gotten by a central agency, so as to avoid competition between t different branches of the Government.

In time of war or threatened emergency, capital should be co scripted as well as labor. All raw materials for the construction national defense equipment shoud be obtained and distributed und one head.

According to this system, the army organization would remain mu the same as it is at present, except that it would be moderniz The navy organization would also have little change. Any air servi that these two departments needed would be permanently assigned them.

The Secretary of the Air, however, should be entrusted with t whole aeronautical department of the Government, which is ev more important in time of peace than it is in time of war, becau we can employ aviation in useful pursuits during peace, such carrying the mail, patrolling the forests, surveying the country, a ing agriculture, animal industry and exploration.

The Department of Aeronautics should be divided into three prin pal subdivisions; one charged with the development of civil aviati This should provide for the airways throughout the country, the ai to air navigation, and provide an efficient weather service and sto warnings; a legal department, to make recommendations about air navigation laws, inspection of pilots and aircraft, so as to sure the public is safe-guarded when traveling or using aircraft.

Would Encourage Civil Aviation.

There should also be formed an aeronautical corporation similar our Inland Waterways Corporation, which should operate between t great centers of population, so as to show what things could be carri safely and at a profit through the air. All figures on this should made public, so that as soon as possible any civilian company desiri to take it over should be allowed to do so. At the present stage of t development of aeronautics, the Government must assist, as all ae nautics is a national asset.

The second division should be a section of fabrication or constr tion. In this department, special studies should be made of the ki of aircraft that are necessary, of their airworthiness and safety. Th should be made in accordance with the desires and wishes of t flying men, by experts, and thoroughly tried out before being issue No aircraft should be built by the Government. All should be built civilian organizations so as to keep up competition, invention and i itiative by the people.

The third division should be the air force, that part specifica charged with the air defense of the whole country. Provision shou be made for a suitable number of well trained flying men and go airplanes to defend this country in case of trouble. Only a small pa of the total need be kept constantly under arms; the rest should working in civil life and the mechanics keeping up their work in t factories and in the industries which go to make up aircraft, bei called out for a suitable period of traning when necessary.

Practically every civilized country has now adopted this sane, e nomical and logical system. With a plan of this kind working, t question of who is to command any undertaking is absolutely fixed if the predominant is to be a sea force, the navy ought to have co mand of the undertaking and the army and air force report to it.

If it is going to be a land campaign, the army should have char of it and all the elements of the navy and air forces report to If it is to be an air campaign, the air force should have charge a the army and navy report to it. The Secretary of National Defen could determine this.

Says Planes Bar Invasion.

With adequate air force in this country, it is difficult to see how a hostile host can touch our soil, coming from Europe or from Asia.

Due to the increased understanding of modern implements of defen it is probable that in the near future civilized nations of the wo will agree to eliminate from their national defense arrangements useless and expensive elements that now enter into it, and will co fine themselves to a defensive armament consisting of aircraft, su marines, and sufficient land forces for their needs. This is what t influence of air power is bringing about.

For many years we have had to cater to the old army and na system—it now should be stopped and a new one instituted. sidestep this change, propositions certainly will be made to create special service of aviation in the army for work over land; a spec service of aviation in the navy for work over the water, and a spec service of aviation within the Department of Commerce to han civil aeronautics. Although this sounds alluring, it will be even worse condition than obtains at present because the old system w still control the aviation in the army, navy and Department of Co merce and will even entrench it more strongly.

This has been tried in other countries—in England, for instance, fore a modern organization was made. The Germans used to atta London. The army air force would chase them as far as the coa There would then be no naval air force, because they were fooli around in flying boats somewhere and under an entirely separate co mand. The Germans therefore did very much as they pleased.

Civil aviation was assigned to the Board of Trade, which in Engla is something like our Department of Commerce. It was put under n fliers, who knew absolutely nothing about aviation and one of the fi rules they prescribed was "When two airplanes meet in a fog, th should blow their fog horns."

The utter absurdity of the whole thing was quickly understood the British people and the whole proposition consolidated under c head. The Germans had done this before them in 1916, and oth nations either have done it entirely or are doing it at present.

A Council of National Defense Needed.

In addition to the Department of National Defense, under one Sec tary, there should be a council of national defense, to consist of t Secretary of State, the Secretary of the Treasury and the Secretary national defense.

In case the President desired advice on the conditions relative to present or to prospective emergencies, he would instruct the Secreta of State to convene this council and report to him the result of th deliberations.

The Secretary of State, having called together the Secretary National Defense and the Secretary of the Treasury, might sa



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Service Ceiling	15,000 ft.	Service Ceiling	12,000 ft.

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"Gentlemen, it is probable that a certain country, combined with others, may force us to defend ourselves within five years. Mr. Secretary of National Defense, what do you need in the armed forces of this nation to maintain our independence and institutions?"

The Secretary of National Defense might answer: "I need an air force of 2,000 airplanes, a naval force of 400 vessels, and an army of half a million men, the cost of which will amount to so much money, with an amount of so much cash immediately available."

The Secretary of State would then ask the Secretary of the Treasury: "How much money have you that can be applied to this proposition, and how much need we raise by taxation at once?"

After having received the necessary data from the Secretary of the Treasury, the whole report could be quickly made up and given to the President, and an absolutely accurate estimate of the whole situation made.

Under our present system tremendous complications would result in case of an emergency as has been the case in the past.

The terrible conditions in our national aeronautics to-day, is not so much the result of the absolute ignorance of individuals, because often these are selected on the principle of saying "tag, you're it; go play with aviation," when they know nothing about it, and are really more to be pitied than blamed. The trouble is with the system, and we flying people insist that our views be known and weighed by the American public.

THE "DAILY MAIL" LIGHT AEROPLANE COMPETITION, 1926.

PRELIMINARY ANNOUNCEMENT.

The Competition is open to any aeroplane, the weight of the engine of which does not exceed 170 lbs.

Note.—The weight of the engine includes Carburettor and Induction System, complete Ignition Equipment, Air Screw Hub and Fastenings, Exhaust Pipes (if any) and Radiator, Pipes and Water (if any).

Two-Seater Dual Control.—The aeroplane must be a two-seater fitted with dual control, and an air-speed indicator must be visible from either seat. The heads of the pilot and passenger must not be enclosed. The seating and controls must be capable of accommodating a normal person of six feet height. A cockpit width of not less than 24 inches must be provided for both pilot and passenger. The top of the control column should be free to move in a fore and aft direction through a distance of not less than 15 inches. The distance between the seats of the pilot and the passenger must not exceed five feet.

British Manufacture.—The aeroplane, including the engine and ignition system, must have been designed and constructed in the British Empire.

Fuel.—The ingredients of the fuels must be commercially obtainable in bulk.

Competitors.—The Entrant and Pilot must be British Subjects.

Load to be Carried.—The load to be carried, exclusive of fuel and oil, must be made up to 340 lbs. This includes the weight of the pilot and passenger (if carried). If there is no passenger the balance of the total weight required must be carried in the spare seat. This weight may be increased until the total weight of the aeroplane is that specified by the Certificate of Airworthiness.

The carrying of a passenger is optional except in the Eliminating Test "B" in which case it is not permitted.

Eliminating Tests.

The following Eliminating Tests A. B. C. and D. must be carried out in this order and must be passed to the satisfaction of the Officials before taking part in the Competition proper.

A. Dismantling, Housing and Re-erecting.—For this Test the aeroplane must be presented to the Officials fully erected. It must then be dismantled or folded in such a manner as to permit of its being completely transported in one journey without the use of any extraneous tackle, over a distance of not more than 25 yards, and placed in a shed 10 feet in width, and 10 feet in height. It must then be taken outside the shed and re-erected. Two persons only will be allowed to handle the aeroplane throughout this Test, and the time occupied must not exceed one hour. No special devices will be allowed unless carried as part of the equipment of the aeroplane in flight during the Competition.

B. Demonstration of Dual Control.—This Test will consist of two separate flights of five minutes' duration each, within sight of the aerodrome, at the termination of each of which one figure of eight must be flown within the boundary of the aerodrome. The pilot must be alone and occupy alternately the two seats in the aeroplane.

C. Getting Off.—This Test will consist of a take off, starting from rest and flying in a straight line over two barriers 25 feet high and placed 25 yards apart. The distance from the starting point to the first barrier will be 250 yards. This distance is based on a wind not exceeding six miles per hour.

D. Pulling Up.—This Test will consist of a straight landing over a barrier six feet high. The length of run must not exceed 100 yards. This distance is based on a wind not exceeding six miles per hour.

Competition.

The Competition will consist of a flight over a course of approximately 2,000 miles at an average speed of not less than 50 m.p.h.

The course will be divided into at least twenty stages, the longest stage not to exceed 125 miles. Particulars of the course will be announced later.

The first Prize of £3,000 will be awarded to the entrant of the aeroplane which carries the greatest useful load per unit of fuel consumed.

The 2nd Prize of £1,500 and the 3rd Prize of £500 will be awarded respectively to the entrants of the aeroplanes which are placed second and third.

It is proposed to hold the Competition during August, 1926, and the exact dates and duration of the Competition will be announced later.

A BRITISH SEAPLANE WORLD'S SPEED RECORD.

The Federation Aeronautique Internationale has granted the World's Speed Record for Seaplanes over a three-kilometre course to the Supermarine Napier S.4 (Pilot, Capt. H. C. Biard). The speed accomplished was 364.924 kilometres per hour equalling 226.752 miles per hour. The tests took place in Southampton Water on Sept. 13 last and were officially controlled by the Royal Aero Club. The speeds for the four runs were 364.865 km.p.h. = 226.716 m.p.h., 360.000 km.p.h. = 223.693 m.p.h., 362.416 km.p.h. = 225.194 m.p.h., 372.414 km.p.h. = 231.406 m.p.h.

[The 231.4 m.p.h. looks rather as though the machine was not full out all the time. These speeds are for sustained flight and no dive whatever was allowed. The record was taken on one of its early flights before the pilot had got used to the machine, and the machine itself had not been cleaned up. Also there is some more fastness yet to come.—ED.]

THE SCHNEIDER TROPHY COMPETITION.

The British Schneider Trophy Team arrived in the United States without untoward incident on Oct. 4. They will visit the Pulitzer meeting on Saturday week.

Writing of the Curtiss Racers which will perform in the Pulitzer Race, and later with floats in the Schneider Trophy race, an American eye-witness of the trials says:—

The machine did a supposed 302 m.p.h. the other day. This, of course, was with a dive and was timed only one way over the course. However, there was only a very slight wind and there is no question but the machine is capable of a higher speed. But without a dive its normal speed is about 265 m.p.h. and its normal landing speed is about 70-80 m.p.h.

The visibility is better than that of the old racers due to the wings being cut away slightly at the cockpit. Otherwise, except for this slight modification in the wing curve, and the fact that the engine mounting is made of tubing, the machine is substantially the same as the old racers.

The under carriage is, however, considerably lighter and the shock absorbers are within the wheels. The main flying wires are attached to the axle somewhat after the style of the Busteed Kitten.

The pilots now wear parachutes and there is an ingenious arrangement for releasing the metal cowling around the cockpit with a trip to enable the pilot to get out quickly. A small wire runs from part of the metal cowling about halfway down the fuselage. This wire is under tension and when it is tripped by a small release on the instrument board it pulls the cowling outward thereby making a large opening.

The machine is powered with the new Curtiss V 1,400 motor which is an improvement on the D.12. There are four valves per cylinder. The compression is considerably higher and the frontal area has been considerably reduced.

THE RETURN OF R.33.

The Airship R.33 after successfully enduring the slings and arrows of outrageous fortune and after having been in the hands of beauty specialists for the fitting of her new nose for some six months, once again took the air shortly after 5 p.m. on Monday, Oct. 5.

Major Scott, who was captain of the R.34 when she crossed the Atlantic, was in command. The captain of the ship was Flt. Lt. Irwin, whom one seems to remember at Roehampton in the autumn of 1915. One has hazy visions of a Zeppelin raid while we were at a revue of the period, called "Shell Out," and the antics of an anti-aircraft gunner engaged on the defence of London with whom we had been dining, who assured us just before the raid that there would be no raid that night.

Sq. Ldr. Booth, who had charge of the ship during her breakaway, was also on board.

At 21.00 hrs. on the 5th she was reported over Clacton and at 23.00 hrs. near Margate. At 08.40 hrs. on the 6th she appeared over Westminster (interrupting one's bath). There was a heavy mist and the effect of the ship, which was evidently just above the mist, with the sun shining on her was rather fine. She disappeared in a Westerly direction and reappeared, going the other way, at 09.00 hrs. She was back at Pulham at 11.45 hrs. and was housed at 12.28 hrs.

During the flight various stress tests were made with recording instruments.

There has been a suggestion that we should adopt the American principle and give names instead of numbers to our airships. It has been suggested that the ships should

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be called after aviation pioneers or well-known characters of history or romance.

Owing to the acute nose troubles of the R.33 one suggests that a combination of the two should be taken and the ship named the "Cyrano de Bergerac," as a compliment to Lieut.-Col. Robert Loraine.—G. D.

[One of the London newspapers has disclosed the awful secret that a sling arrangement has been fitted beneath the ship to release and/or catch a D.H.53 light monoplane, and remarks, with an air of great knowledge, that aeroplanes have been released from airships in the United States. One would add that a Camel was released from one of the early British R. type ships (R.23 or R.29) in 1917 or thereabouts and catching and releasing has been practiced in America for the past two or three years. Commander Usborne and Lt. De Courcy Ireland, R.N., were killed in a release experiment in 1915 at Kingsnorth. And M. Pégoud made successful catching tests on a fixed wire in 1913. So there is no great novelty about the idea.—C. G. G.]

THE LONDON AEROPLANE CLUB.

During the month of September the two London Club D.H. Moths have flown 88 hours 40 minutes. Mr. F. G. M. Sparks, the senior Pilot Instructor, gave flying instruction for 45 hours 50 minutes, and Mr. G. T. Witcombe, the second Instructor for 42 hours 50 minutes. During the month there were four days on which no flying was possible.

Since the opening of the Club on Aug. 19 last, 72 members have received flying instruction and of these several have completed over six hours' dual control, and three are flying solus.

There is a general feeling among the members that they should be represented on the Committee and as they are the *raison d'être* for the club this seems reasonable.

The Committee state that as they control Treasury money they cannot be told what they must do and what they must not do by the members.

If the members are not to have any say as to what they may or may not want the Club will not last long, as the members will resign and those on the waiting list will not wait and then the Treasury money will probably be withdrawn.

The duty of the Committee is to run the Club and if members want lectures it is the duty of the Committee to arrange them and not merely to tell the members that they can arrange lectures themselves. The Committee would do well not to adhere too strictly to Soviet methods.

THE HELICOPTER FIASCO.

At last the Brennan Helicopter has been out in the open. On Friday, Oct. 3, in the face of superstition, the secretest of our secrets was wheeled, pushed, or otherwise transported from the old airship shed at Farnborough, wherein it has incubated from time immemorial, out into a very secret enclosure within the precincts of the R.A.E.

After a preliminary ground test, the machine, which was piloted by Mr. R. Graham, succeeded in rising a foot or two off the ground. It then lost its stability, toppled sideways, and crashed sideways on the ground.

It was rapidly removed to its shed and everything is being done to make it look as though it had never been out.

This news was only made public because no amount of authority can keep sightseers off the public heath surrounding the Farnborough aerodrome, and apparently a sightseer saw. However one does now know that something was going on within the hermetically-sealed half of the airship shed.

[The time now seems ripe for forcing an inquiry into this waste of public money, of which, one is told, something like £100,000 has been expended on this precious helicopter. Apparently Mr. Lloyd George was personally responsible for the contract under which Mr. Brennan has been enabled to draw such immense sums for an experimental machine in which he, Mr. Brennan, is probably the only believer. For some reason the Air Ministry seems to be unable to cancel the contract. And the reason why should be made public.—C. G. G.]

THE NON-PROHIBITION OF PRIVATE FLYING.

In May of 1924 The Aeroplane published an article entitled "The Prohibition of Private Flying," dealing with the obstacles which beset the path of the would-be private owner of aircraft as the result of Government control of flying in this country.

As a result of this article a communication was received from the Department of Civil Aviation suggesting that the writer had misinterpreted the regulations relating to private flying, had confused them with those relating to aircraft plying for hire and had altogether exaggerated the difficulties placed in the way of the private owner.

The short answer to this suggestion was that in the absence of a definite statement made with authority the acts and behaviour of Air Ministry officials towards the private owner were the only possible guide to an interpretation of Air Navigation Regulations and that the Air Ministry—if they wished to remove the current impression on the subject—should issue a clear statement of the regulations which do apply to private aircraft.

As was announced in the issue of May 21, 1924, a promise that this should be done was given by the Air Ministry.

On Oct. 5, 1925, Notice to Airmen No. 56 of 1925, "Notes for the Guidance of Persons wishing to obtain Private Pilot's Licences," has been issued in partial satisfaction of that promise.

Five pages of printed matter are required to explain what the would-be private pilot is required to do. Under the circumstances it is not possible to discuss these requirements at length in this issue, but it is hoped to do this in the next issue. All that can be said is that if private flying is not prohibited it is very quaintly encouraged.—W. H. S.

THE ROYAL AIR FORCE.

The London Gazette.

Sept. 29.

In pursuance of his Majesty's pleasure, Air Vice Marshal D. Munro, C.B., C.I.E., M.B., Director of Medical Services, R.A.F., has been appointed an Honorary Surgeon to the King (Sept. 21).

In pursuance of his Majesty's pleasure, Group Capt. H. V. Wells, C.B.E., has been appointed an Hon. Physician to the King (Sept. 21).

General Duties Branch.—The following are granted perm. comns. as Plt. Offs. with effect from the dates indicated, and with seniority of the dates indicated in brackets:—J. C. C. Slater, Sept. 12 (Sept. 12, 1924); C. F. C. Coaker, Sept. 26 (Sept. 26, 1924); R. F. Findlay, Sept. 26 (Sept. 26, 1924).

The following are granted S.S. comns. as Plt. Offs. on probation, with effect from, and with seniority of, the dates indicated:—D. L. Kavanagh, J. H. Leach, S. A. Thorn, D. G. K. Walker (Sept. 21); W. A. Andrews, W. E. Barnes, J. Blackmore, W. G. Campbell, G. C. Crackanthorpe, H. C. G. Dauncey, J. M. Hunter, J. F. Lawn, H. G. Loch, W. C. McNeil, L. H. Mason, T. F. Moloney, C. M. Peabody, R. T. Read, G. L. G. Richmond, J. T. Riggs, L. G. Rumsey, E. T. M. Smalley (Sept. 26).

The following Plt. Offs. are promoted to rank of Flg. Off.:—E. A. C. Bushell (July 10); J. E. Preston, F. E. North, G. M. Pitts-Tucker, H. Thomas, F. T. Stacey (Aug. 3); H. G. Slater (Sept. 3).

Flt. Lt. E. R. Whitehouse is restored to full pay from half-pay (Sept. 21).

The following are transferred to the Reserve:—Class A.—Flg. Off. H. Macmillan (Sept. 27); Flg. Off. A. C. Heaven, M.C. (Sept. 30). Class C.—Flt. Lt. D. C. Balfour (Oct. 1); Flg. Off. H. W. Parker (Oct. 1); Flg. Off. C. J. Watson (Oct. 1).

Plt. Off. J. C. Don resigns his perm. comn. (Sept. 30); Flg. Off. A. R. Buchanan resigns his S.S. comn. (Sept. 30); Plt. Off. on probation S. A. B. Harries relinquishes his S.S. comn. on account of ill-health (Sept. 30).

The following relinquish their temp. comns. on return to Army duty:—Sq. Ldr. G. G. Adeley (Capt., R. Ulster Rifles) (Sept. 16); Flg. Off. J. Dunn (Lt., R.A.) (Sept. 23).

Flt. Lt. C. J. Truran, A.F.C., is cashiered by sentence of General Court Martial (Aug. 8).

Stores Branch.—Flg. Off. A. G. S. Tuke is transferred to the Stores Branch on probation (Sept. 7).

Medical Branch.—Flt. Lt. J. C. Osburne, M.B., is granted a perm. comn. in the rank stated (Sept. 30); A. F. Cook is granted a S.S. comn. as a Flg. Off. for three years on the active list, with effect from, and with seniority of, Sept. 16.

Reserve of Air Force Officers.—The following are granted comns. in Class A.A, General Duties Branch, as Plt. Offs. on probation:—A. N. Wells (Sept. 15); J. A. Lincoln, L. R. Maffezzoni (Sept. 21). Plt. Off. A. R. J. Savage is confirmed in rank (Sept. 24); Flg. Off. H. J. Ellam is transferred from Class A to Class C (May 23).

Appointments.

Week ending Oct. 5.

General Duties Branch.—Group Captain P. H. L. Playfair, M.C., to R.A.F. Depot, 1/9.

Wing Commander T. W. Mulcahy-Morgan, M.C., to H.Q., Egypt, for Personnel Staff duties, 22/9.

Squadron Leaders R. S. Maxwell, M.C., D.F.C., to No. 47 Sqdn., Egypt, 22/9. R. L. G. Marix, D.S.O., to H.Q., Mediterranean, 24/9. F. H. Unwin, O.B.E., to No. 1 School of T.T. (Boys), Halton, 1/10. Sir C. J. Q. Brand, K.B.E., D.S.O., M.C., D.F.C., to Air Ministry, 22/9.

Flight Lieutenants E. B. Mason and J. H. Green, to No. 208 Sqdn., Egypt, 22/9. H. P. G. Leigh, to Engine Repair Depot, Egypt, 22/9. G. G. Walker, M.C., to No. 4 F.T.S., Egypt, 22/9. K. E. Ward, to R.A.F. Base, Calshot, 14/9. P. E. Maitland, A.F.C., to R.A.F. Depot on transfer to Home Estab., 18/9. R. V. Goddard, to R.A.F. Depot, 14/9. D. Craik, D.F.C., to No. 24 Sqdn., Kenley, 24/9. R. L. Sweeny, to R.A.F. Depot, 8/10. E. Burton, to I.A.A.D., Henlow, 28/9.

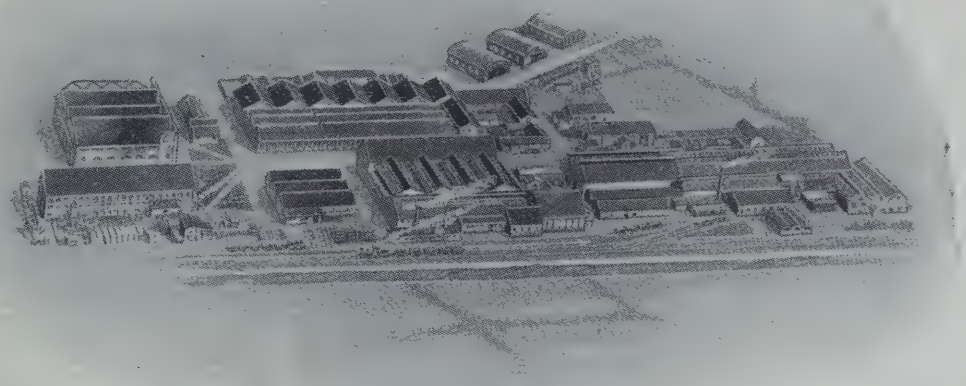
Flying Officers G. H. Stainforth, R. N. Waite and C. C. Edwards, to No. 4 F.T.S., Egypt, 22/9. T. B. Prickman, to No. 14 Sqdn., Palestine, 22/9. B. C. Duke, to No. 1 School of T.T. (Boys), Halton, 30/9. D. S. Brookes, to Station H.Q., Kenley, 5/10. O. B. Swain, to Station H.Q., Spittlegate, 21/9. A. C. Addams, to R.A.F. Depot on transfer to Home Estab., 12/9. H. J. Hunter, to No. 1 S.D., Kidbrooke, on transfer to Home Estab., 18/9.

Pilot Officers F. W. Moxham and H. E. Nowell, to 208 Sqdn., Egypt, 22/9. V. G. H. Gee, to No. 4 F.T.S., Egypt, 22/9. J. C. H. Tavendale,

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to No. 5 F.T.S., Sealand, on appointment to a Perm. Comn., 12/9. R. F. Francis and W. E. Nicholls, to School of Naval Co-operation, Lee-on-Solent, 15/9. C. F. C. Coaker and R. F. Findlay, to C.F.S., Upavon, on appointment to Perm. Comns., 26/9. The undermentioned Pilot Officers are all posted to C.F.S., Upavon, on appointment to S.S. Comns., with effect from 26/9:—W. A. Andrews, W. E. Barnes, J. Blackmore, W. G. Campbell, G. C. Crackanthorpe, H. C. G. Dauncey, J. M. Hunter, J. F. Lawn, H. G. Loch, W. C. McNeil, L. H. Mason, T. F. Moloney, C. M. Peabody, R. T. Read, G. L. G. Richmond, J. T. Riggs, L. G. Rumsey and E. T. M. Smalley.

MEDICAL BRANCH.—Wing Commander H. W. Scott, to R.A.F. British Hospital, Iraq, 22/9. Squadron Leader F. C. Cowtan, to R.A.F. Depot, 30/10. Flight Lieutenants H. McW. Daniel, M.D., to H.Q., Iraq, 22/9. J. K. Landells, M.B., to R.A.F. British Hospital, Iraq, 22/9. D. McLaren, M.B., to H.Q., Egypt, 5/9. M. J. O'Reilly, to H.Q., Egypt, 22/9. Flight Lieutenants (Dental) S. A. McCormack and P. P. Hogan, to H.Q., Iraq, 22/9. Flight Lieutenants (Q.M. Medical) W. P. Conolly, to R.A.F. British Hospital, Iraq, 22/9. E. Bennett, to Stores Depot, Iraq, 22/9. Flying Officers H. W. Corner, M.B., to Basrah Combined Hospital, Iraq, 22/9. J. Parry-Evans, H. C. Patterson, F. L. White and B. Pollard, to H.Q., Iraq, 22/9. G. J. Hanly, M.B., to R.A.F. Depot, 29/9. R. J. K. Chattey, to Research Laboratory and M.O.s' S. of I., Hampstead, on appointment to a S.S. Comn., 28/9.

LEGAL BRANCH.—Sq. Ldr. E. St. C. Harnett, O.B.E., to H.Q., Iraq, 22/9.

STORES BRANCH.—Flight Lieutenant E. A. Tottle, to Air Ministry, 22/9. Flying Officer T. L. Grey, to R.A.F. Depot on transfer to Home Estab., 12/9. R. W. Stewart, to H.Q., I.A., instead of to No. 3 S.D., as previously notified, 5/10.

ACCOUNTANT BRANCH.—Flying Officers R. C. Clayton, to H.Q., Transjordan, 22/9. H. A. Murton, to No. 4 Arm. Car Coy., Iraq, 22/9. F. C. Warner, to No. 84 Sqdn., Iraq, 22/9. W. R. Donkin, to Aircraft Depot, Iraq, 22/9.

Air Defence Appointments.

The Air Ministry announces the following appointments:—

1. Air Vice-Marshal H. R. M. Brooke-Popham, C.B., C.M.G., D.S.O., A.F.C., to be Air Officer Commanding, Fighting Area, Air Defence of Great Britain, to date April 1, 1926.

2. Air Vice-Marshal J. M. Steel, C.B., C.M.G., C.B.E., to be Air Officer Commanding, Wessex Area, Air Defence of Great Britain, to date May 1, 1926.

These appointments are the first appointments to two of the principal posts to be created under the Air Officer Commanding in Chief, Air Defence of Great Britain, Air Marshal Sir John Salmond. The Air Officer Commanding, Fighting Area, will command all the fighting units engaged in Home Defence. The Air Officer Commanding Wessex Area will command all the Home Defence bombing units.

Air Vice-Marshal Brooke-Popham was appointed to the R.F.C. from the Oxford and Bucks Light Infantry in 1912 and served in France from August, 1914, with short intervals, until the end of the war. He was appointed to command a Wing in February, 1915, and was subsequently employed on Staff duties at R.F.C. H.Q. After the war he became Director of Research at the Air Ministry until November, 1921, when he was appointed to first Commandant of the R.A.F. Staff College.

He will relinquish this appointment to Air Commodore Ludlow Hewitt to take up the post of Air Officer Commanding, Fighting Area.

Air Vice-Marshal Steel was employed on naval duties during the early years of the war being promoted Captain, R.N., in December, 1916. From February, 1917, until the end of the war he commanded the R.N.A.S. station at Eastchurch. After the war he became Director of Operations and Intelligence at the Air Ministry, being appointed in addition to be Deputy Chief of Air Staff in August, 1922.

Since November, 1923, he has been an additional member of the Air Council. He will be relieved as Deputy Chief of Air Staff and Director of Operations and Intelligence by Air Commodore Newall.

The R.A.F. Medical Service.

The Air Ministry announces:—

His Majesty the King has been graciously pleased to approve of the following appointments:—

Air Vice-Marshal David Munro, C.B., C.I.E., M.B., M.A., F.R.G.S. (E), to be an Honorary Surgeon to His Majesty.

Group Captain Hardy Vesey Wells, C.B.E., to be an Honorary Physician to His Majesty.

Air Commodore Munro was born in 1878 and educated at St. Andrew's and Edinburgh University. He entered the Indian Medical Service in 1901 and served in the Military Department and Bengal Civil Medical Department until 1914.

He served with the Indian Medical Service in France, Mesopotamia and Palestine from 1914 to 1919 and was largely responsible for re-organising and generally clearing up the chaotic conditions existing among the medical services during the early stages of the campaign in Mesopotamia.

In 1919 he became attached to the R.A.F. and was appointed Principal Medical Officer to the R.A.F. in India. In 1921 he returned to the Home Establishment and was appointed Director of Medical Services, R.A.F., in November, 1921.

He was promoted Group Capt. in December, 1920, Air Commodore in November, 1921, and Air Vice-Marshal in July, 1925.

Group Captain Hardy Vesey Wells, M.R.C.S., L.R.C.P. (London, 1900), was the first Naval Surgeon to be appointed for duty with aviators. He was posted to the small Naval Unit at Eastchurch in 1912, where four Naval Officers were learning to fly.

In spite of his special knowledge the Admiralty sent him to sea not long after the outbreak of War and he did not rejoin the R.N.A.S. until about 1917.

On the formation of the R.A.F. in April, 1918, he was gazetted a Wing Commander in the Medical Service. He was promoted to Group Captain in January, 1921, while acting as principal medical officer to the Inland Area, which appointment he held from April, 1920, until September, 1924. In September, 1924, he became principal medical officer to the Iraq Command.

The Auxiliary Air Force.

The Air Ministry announces that arrangements have not been completed for the establishment, this year, of the first four Squadrons of the new Auxiliary Air Force. These Units which will form part of the Home Defence Force, will be raised and administered by the Territorial Army and Air Force Associations in the respective districts. With the exception of a small nucleus of regular personnel each Auxiliary Air Force Squadron will be composed of non-regular officers and airmen, the personnel being drawn from the vicinity of the city or town at which the units are centred.

The Squadrons forming immediately are:—No. 600 City of London (Bombing) Squadron. No. 601 County of London (Bombing) Squadron. No. 602 City of Glasgow (Bombing) Squadron. No. 603 City of Edinburgh (Bombing) Squadron.

The following appointments have already been made:—Sq. Ldr. Lord E. Grosvenor to command No. 601 County of London (Bombing) Squadron. Sq. Ldr. J. McKelvie, A.F.C., to command No. 603 City of Edinburgh (Bombing) Squadron. Sq. Ldr. C. N. Lowe, M.C., D.F.C. to command temporarily No. 602 City of Glasgow (Bombing) Squadron.

Each Squadron will be provided with training machines, and later with the full scale of bombing aircraft allowed for a normal regular Squadron. These will be housed at the Squadron Aerodrome which will be equipped with the necessary workshops and technical accommodation. At these aerodromes the normal flying training will be carried out, but each Squadron will also have an allotted War Station within the Defence System.

In order to assist Ground training, each Unit will be provided with Town Headquarters, where training and technical instruction will be carried out. The Town Headquarters will, in addition, provide social facilities, similar to those exising at Territorial Army Units.

The two London Units will, for the present, carry out their flying training at Northolt Aerodrome; the Glasgow Squadron will be located at Renfrew Aerodrome, and the Edinburgh one at Turnhouse. All these Aerodromes were in occupation during the war.

The date on which recruiting of airmen for each Unit will be opened will be announced later, but the County Associations are now prepared to receive applications from gentlemen who wish to be considered for commissions in the new Units. Although the regulations permit commissions to be granted to gentlemen who are already qualified pilots, it is the intention to fill the commissioned ranks, with the exception of the Senior appointments, from amongst candidates who have had no Service flying experience. In deciding upon this policy, the Air Ministry has been influenced by two reasons—first that qualified pilots can join the pilots' section of the Reserve of Air Force Officers and, secondly, that in endeavouring to obtain those who are without flying experience, an opportunity is given which should bring about a more widespread acquaintance with flying, and so broaden the basis on which the Air Force is built.

Applicants for commissions as Pilot Officers should be between 18 and 25. Candidates, who are found on interview to be suitable will be required to produce a Licence "A" certificate before being granted commissions. If not already in possession of Licence "A" candidates must obtain it at their own expense after being provisionally selected for a commission. If they graduate successfully they will, however, be refunded their actual tuition expenses up to a sum, at present £96, which is considered to be the likely cost to an average candidate.

Candidates must engage in the first instance for five years' service. After qualifying as pilot, officers of the Auxiliary Air Force will be required to fly a few hours every quarter and to attend annual training for fifteen days.

Candidates can obtain full information from the Secretaries of the Territorial Army and Air Force Associations at the undermentioned addresses, and from the Air Officer Commanding, Special Reserve and Auxiliary Air Force, 145, Sloane Street, Sloane Square, S.W.1.

The Secretary, City of London Territorial Army and Air Force Association, 39, Finsbury Square, E.C.2.

The Secretary, County of London Territorial Army and Air Force Association, Duke of York's Headquarters, Chelsea, S.W.3.

The Secretary, City of Glasgow Territorial Army and Air Force Association, 201, West George Street, Glasgow.

The Secretary, City of Edinburgh Territorial Army and Air Force Association, 8, Wemyss Place, Edinburgh.

Royal Air Force Pay.

The Air Ministry announces that revised rates of pay have been approved for officers of ranks up to and including Flight Lieutenant in the General Duties Branch of the Royal Air Force and Royal Air Force Reserve as follows:—(The first figure is standard rate and the second is current rate.)

Plt. Off., 16s., 15s. 2d. Flg. Off. on promotion, £1, 18s. 10d. Flg. Off. after two years, £1 3s., £1 1s. 8d. Flt. Lt. on promotion, £1 6s., £1 4s. 6d. Flt. Lt. after two years, £1 8s., £1 6s. 6d.

These rates will be applicable to officers commissioned or re-commissioned in the General Duties Branch of the R.A.F. or R.A.F. Reserve on or after Oct. 1, 1925; they will not be applicable to officers commissioned before that date during the currency of their existing commissions. Detailed regulations as to the application of these revised rates will shortly be issued.

The rates of half pay of officers to whom the above rates of full pay apply have been revised.

Revised rates of pay have also been approved for airmen of the R.A.F. and R.A.F. Reserve. These rates will be applicable to airmen enlisted or re-enlisted on or after Oct. 1, 1925, but not to airmen who enlisted before that date. Detailed regulations will shortly be issued.

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Fleet Air Arm Distinctions.

The Times of Oct. 3 states :—

It has been decided by the Admiralty, with the approval of the King, that officers of the Royal Navy and officers of the Royal Marines attached to the Royal Air Force for service in the Fleet Air Arm shall wear a badge composed of a silver anchor and a cable of silver embroidery surrounded by a laurel wreath of silver embroidery, superimposed on the wings of an albatross in gold embroidery. The badge will be worn by Naval officers in the centre of the left sleeve, and by Royal Marine officers on the left forearm.

Royal Air Force officers of the Fleet Air Arm will wear a badge composed of a small silver anchor and cable of silver embroidery surrounded by a laurel wreath in gold embroidery.

The badge will be worn in accordance with the directions issued by the Air Ministry weekly order of September 10.

A Fatal Accident.

The Air Ministry regrets to announce that as a result of an accident at Kohat, India, to a Bristol Fighter of No. 20 Squadron on Oct. 2, Flg. Off. Edgar Thomas O'Neil Hogben, the pilot and sole occupant of the aircraft, was severely injured and died on Oct. 5.

Education at Cranwell.

The Commandant of the R.A.F. Cadet College, Air Commodore A. E. Borton, in his report at the Inspection last July, said that the standard of engineering knowledge was better but that the standard of knowledge in aeronautical science shown previously by Cadets had hardly been maintained by the last two entries The Commandant remarked "There is a lack of scholarship displayed which can only be gained by initiative and private study."

In English and History some of the Cadets in the term passing out had done original and often brilliant work. The exercises on strategy had been most satisfactory. At the debates many Cadets had learned to express themselves fluently and without uneasiness.

In addition to the Commandant's report the current number of the Cranwell Magazine, Autumn, 1925, contains a number of interesting articles and photographs. *An Echo of the Great War* is part of the diary of a pilot in the R.F.C. who was shot down near Lille in 1915 and escaped through the German lines. [Internal evidence shows that the diary is that of the late Captain Gilbert Mapplebeck.—Ed.]

A Glimpse of the Future, by Flt. Lt. Cochrane, is the imaginary diary of a Flight Commander, R.A.F., in 1931, and describes the transport and operations of a "striking force" squadron ordered to South Africa to quell a native rising. The story is well told and extremely interesting, though the unbelieving may jib at the transport of aeroplanes by lighter-than-aircraft. The useful co-operation of a Government-subsidised civilian air transport company with a fighting force is also open to argument.

There are more contributions by the Cadets themselves than in previous issues and the high standard of previous numbers is fully maintained.—C. M. McA.

The R.A.F. Memorial Fund.

The report of the activities of the R.A.F. Memorial Fund during the period from July 1 to Sept. 30, 1925, shows that grants to the amount of £1,311 15s. 4d. have been made to ex-members of the R.A.F.

Post-war members of the R.A.F. have been assisted to the extent of £171 2s. 11d., chiefly in very small sums, for maintenance, convalescence of children, etc.

The Committee has dealt with 144 cases, exclusive of ex-officers, during this period.

Funds are still needed to carry on this excellent work.

Association Football.

R.A.F. v. Middlesex County :—This match was played at the Uxbridge Stadium ground on Sept. 30, and resulted in a draw, each side scoring three goals.

The R.A.F. team were suffering from a lack of training and combination owing to the fact that it was only their second match and it was early in the season. They managed however to hold their own against a very strong county side. Play improved all round in the first part of the second half but one was under the impression that Middlesex could have done much better if they had taken the R.A.F. seriously.

The following criticism of the R.A.F. team and individual players has been written for The Aeroplane by one who thoroughly understands the game.

The game was a little on the slow side owing to the length of the grass, at the "jungle" end. Also it was too warm an afternoon for strenuous football.

Flg. Off. Hadley, in goal, played very well indeed. His one mistake, when he failed to gather the ball correctly, resulted in Middlesex's first goal. Owens, at back, played brilliantl during the first half, but as he was called upon to do more tha his share, tired a bit towards the end. Fretwell has appa ently overlooked the necessity for a little training. Howeve Middlesex appeared to explain the advantage of being fit t him carefully, and it is hoped this will be the final re minder. Wilson is not yet suited to first-class football bu shows promise. Dickson was often brilliant, but at time his stamina failed. Considering he has just recovered fro influenza he played a very good game. Cpl. Allan's footba is not his strong point at the moment and would do bette to take a little more interest in the game.

The forward line played well—in fact very well, and bu for the aforesaid jungle would have done even better stil The new recruit, Parrish, if he takes care of himself and willing to learn, will go far in first-class football. He is t be congratulated on his first appearance for the R.A.F. Hi goal was the best of the afternoon. Williams, Morris Bishop and Francis, when they have a little better unde standing, have the makings of an excellent forward line.

In conclusion, the team at present is ragged—but will b strengthened when two wing halves have been discovered The team must, as representing the Royal Air Force, tak their football a little more seriously, and make and keep then selves fit, and they will develop into a side of which th R.A.F. may be proud.

The R.A.F. team were :—

Flg. Off. Hadley (C.A.H.Q.); AC. Owens (Calshot) and Flt. Sj Fretwell (Hawkinge); AC. Wilson (Cranwell), Flg. Off. C. N. Dickson (Cranwell) and Cpl. Allen (Flowerdown); Sjt. Franci (Cranwell), AC. Bishop (Henlow), AC. Parrish (Uxbridge), Flg. Of Williams (Cranwell) and AC. Morris (Halton).

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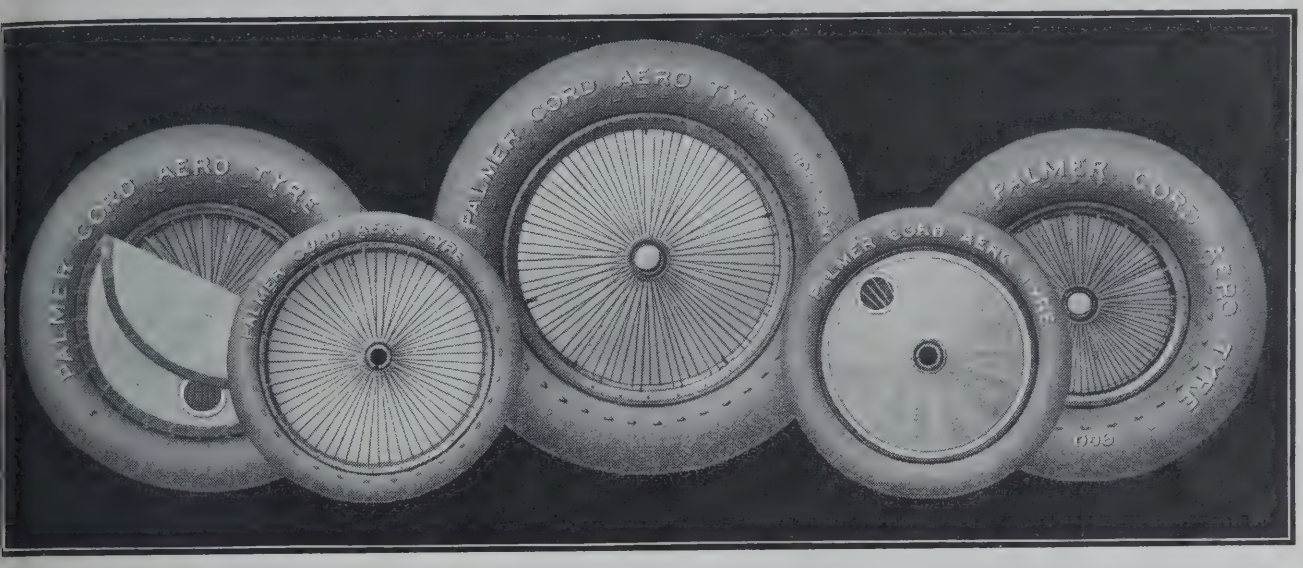
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375×55	168	111.12	25.4	Central	700×100	99	178.	38.89	132/46	1000×150	201	185.	60.32	125/60
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300×60	16	111.12	25.4	Central										
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450×60	30	89.	31.75	Central						,,	155	220.	66.67	Central
,,	138	130.	38.09	Central	750×125	77	178.	44.45	132/46	,,	166	185.	55.	125/60
					,,	92	185.	55.	135/50					
575×60	21	160.	28.	Central	,,	95	185.	55.	Central	900×200	107	185.	55.	Central
,,	34	150.	31.75	104/46	,,	96	178.	55.	132/46	,,	108	185.	55.	125/60
,,	111	150.	38.09	104/46	,,	99	178.	38.89	132/46	,,	128	220.	66.67	Central
					,,	112	150.	38.09	Central	,,	137	250.	80.	Central
600×75	21	160.	28.	Central	,,					,,	202	185.	60.32	Central
,,	34	150.	31.75	104/46										
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50					
					,,	85	185.	55.	Central	1100×220	134	220.	66.67	Central
700×75	78	178.	44.45	132/46	,,	161*	185.	55.	135/50	,,	136	250.	80.	Central
,,	79	178.	44.45	Central	,,	163*	185.	66.67	135/50					
,,	100	178.	38.09	132 46	,,	169†	185.	55.	135/50	1250×250	133	250.	80.	Central
,,	101	178.	31.75	132/46	,,	211*	185.	60.32	135/50	,,	154	304.8	101.6	Central
700×100	77	178.	44.45	132/46	1000×150	131	220.	66.67	Central					
,,	92	185.	55.	135/50	,,	150	185.	55.	Central	1500×300	115	304.8	101.6	Central
,,	95	185.	55.	Central	,,	167	185.	55.	125/60	,,	126	304.8	152.4	Central
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THE SHORTCOMINGS OF AIRCRAFT.

Sir Sefton Brancker's paper on "The Lessons of Six Years' Experience in Air Transport" was read before the Royal Aeronautical Society on Oct. 1. The paper itself is of very considerable volume, and does not lend itself easily to compression into the space which is available in this paper. Essentially the paper is a review of the defects of the aeroplane under the heads of safety, reliability, and economy, which have become apparent in the period in question, together with a multitude of suggestions for the avoidance of these defects—and of certain others which are regarded as possible—in the future.

Safety.

In the matter of safety the author gives a list of possible sources of danger in aircraft. This list is :—(a) Breakage of the craft in the air. (b) Jambing or failure of the controls. (c) Fire. (d) Engine or installation failure in conditions where safe landing is impossible. (e) Error of judgment or sickness of the pilot. (f) Adverse weather. (g) Collision.

In the six years of civil flying since the war there have been altogether twelve accidents to transport machines involving serious danger. Five of these had fatal results. The basic causes of these accidents are given as error of judgment in eight cases, power-plant failure in two cases, collision one case, and faulty compass one case.

The various possible causes of accidents in the first list are then considered in some detail, and steps which should be taken to avoid them—in the author's opinion—are suggested. [(Generally these suggestions are sound enough in their way—considered item by item. Very few of them will have failed to occur to the average designer—and the only reason why all of them are not incorporated in every machine is that generally speaking any improvement in one direction produces secondary effects in another, and the disadvantages of these secondary effects in practice often outweigh the primary advantage.)

[(The designer has to compromise between conflicting advantages and disadvantages—the critic can neglect the disadvantages and with them overlook all the difficulties which face the designer.)]

Having concluded his analysis of the dangers inherent in flying, the author states that "they cannot be said to amount to very much. Summing them all up the following are the principal points on which designers and scientists can best help the operators to avoid danger :—

(1) The development of metal construction for every component of the aeroplane and further investigation into the action of fatigue on those metal structures.

(2) The provision of an infallible power plant even at the cost of extra weight and extra expense.

(3) The design of aircraft of greater stability and easier to handle than those in use to-day.

(4) The perfection of wireless navigational equipment.

(5) The elimination of the possibility that snow may choke the engine.

(6) Investigation of the effect of lightning and development of measures to prevent any danger therefrom.

(7) The evolution of some form of automatic fog signal which will function between aircraft in full flight. (This is for the avoidance of collision in fog.)

[The engineer and scientist may be thankful that the dangers of flying do not "amount to very much."—Ed.]

Reliability.

Safety, however, is only one part of the problems which have to be solved. Reliability is not satisfactory. Delays in the beginning or the completion of flights are found mainly to be caused by weather, and defects in power plant. Weather in this connection means bad visibility. To overcome the difficulties of flying in bad visibility, Sir Sefton suggests greater stability of the machine—possibly attained by some mechanical device. The difficulty of a possible forced landing in fog, is to be cured by the avoidance of power-plant defects. The problem of landing at the terminal in fog is probably the most serious difficulty. Wireless can guide the aircraft practically over the aerodrome, the leader cable promises to take up the work and guide the machine accurately to the landing place. Neon lighting will give the pilot the final information to permit of the actual landing. Doubtless difficulties and weaknesses will be revealed in practice and the assistance of all capable of assisting will be required to solve the problem completely.

Mechanical defects of the power plant represent the cause of from 21 per cent. to 50 per cent. of unreliability. The author has analysed the defects which have led to engines being removed from their machines before their normal period of overhaul. He finds 28 per cent. of troubles to be due to water systems, 19 per cent. to valve breakage or distortion, 10 per cent. to oil circulation, 23 per cent. to actual breakages of material. Of these failures 7 per cent. only were sufficiently serious to cause immediate stoppage of t engine. Of these 7 per cent. one case was a broken conne ing rod, and three were reduction gear failures.

The figures are regarded as satisfactory because so ma of the failures are comparatively easy of correction. T figures relate to cases which entailed engine removal, a the author has no record of delays caused by magneto, c burettor or petrol supply troubles.

The conclusions are as follows :—Water cooling is t greatest weakness—the simplest way of curing this is cooling. Valve trouble can be eliminated by using slee valves—even without this it is felt that ordinary valves c be improved.

[Query : Is the air-cooled, sleeve-valve engine yet visibl If not how are both water-cooling and valve troubles to avoided simultaneously?—Ed.]

Oil troubles can surely be avoided by careful desig Breakages are mainly of minor parts and attributable vibration, fatigue, or, to some extent, to faulty fittin Breakages of reduction gear point to the use of direct-dri engines—but unfortunately designers are unanimous in calli for gearing to obtain the loadings demanded from them.

Installation failure is as important as engine failure, b it is doubted whether installation is given the attention deserves.

No twin-engined machine known can be counted upon reach its destination on one engine when carrying an appre able load. It is therefore no more reliable, though it is safe than the single-engined type. The three-engined ty promises to be able to reach its destination on two engin and by this time next year we should know if it will real do so. If the three-engine type presents insuperable dif culties we may have to go to the four-engined type. [W not even further?—Ed.]

The subjects upon which the technical expert is request to bend his energies in regard to reliability are :—

(1) The development of all-metal aircraft.

(2) The infallible power plant.

(3) The aeroplane of increased stability and ease handling.

(4) Improved wireless navigation equipment.

(5) Elimination of choking by snow.

(6) The evolution of a system of guiding aircraft safe into an aerodrome in fog.

(7) Very close attention to the reliability of all con ponents of the installation.

(8) The development of a satisfactory heavy-oil engi without exceeding the total weight per horse power of "en gine plus four-hours' fuel" attained by present petrol e gine.

[It will be noticed that (1) to (6) are also required for safet (6) barely concerns the design of aeroplanes, and (7) and (seem redundant, in view of (2). It is curious that reliabilit may be served by an oil engine not heavier than prese petrol engines, but that the infallible engine is permitted t be both heavier and more expensive than those now in us The author in fact wants most things for nothing but i ready to pay a little for everything—if he can get it all a once.—Ed.]

Economy.

This section opens—"We now come to the real bugbear o air transport—its cost of operation. There are many com paratively intelligent individuals who maintain that aer plane transport cannot pay in this generation or even durin the next." Frankly, taking the requirements already postu lated by Sir Sefton Brancker as essential for success, it i difficult to see why even extremely intelligent people shoul maintain any other belief.

The author himself fears that air transport will always b expensive. He bases this fear on the fact that the aeroplan expends power in supporting itself, whereas all other vehicle are supported by the medium on which they circulate. H quotes the statement that the aeroplane is always hauling u an inclined gradient. This is perfectly true, but the im portance of this factor diminishes with speed. In fact th aeroplane is a more efficient vehicle—wastes less power tha any other practical type—at the speed and carrying the load that the aeroplane actually does carry. The most importan item of running cost—nothing is said as to the administrative costs, but we have already been assured that administratio is beyond criticism—are fuel and oil, pilots' and mechanics flying pay, engine maintenance and overhaul, and aeroplan maintenance and overhaul. Fuel and oil represent 30 pe cent. of running costs—which is said to be a very importan item—a standard W.8b costing more than 10d. per ton mile on this count. It may be calculated from this that the tota operating costs of a W.8b are of the order of 3s. per ton mile. The author does not state whether this is gross ton miles or paying-load ton-miles, but it is easily deduced tha

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the figures relate to paying load and not to machine plus load. [(Passengers with average luggage included may be taken at 11 to the ton roughly—and the operating cost of a 1921 type aeroplane is therefore about 3d. per passenger mile at 85 m.p.h. On the face of it therefore it is ridiculous to put the blame for the non-success of air transport on high operating costs. High administrative cost and sheer bad management seem capable of taking some large share of the blame.—Ed.)]

Pilots' and mechanics' pay is a small item—1¼d. to 1½d. a mile. Maintenance and overhaul of engines is the biggest item of all—it amounts to 44 per cent. of the whole. (From the W.8b figures it may be deduced to amount to 1.3 pence per passenger mile.) Aeroplane maintenance costs form the last large item—about 20 per cent. of the total—say, 0.6 pence per passenger mile.

[These figures are high on the basis of surface vehicle costs. The total running costs of a particular two-seater car average 2.4d. per mile—on a seat capacity basis about one half of that of the aeroplane—but at roughly one-third the speed. The responsibility of running costs for the failure of the aeroplane can therefore not be accepted, speed being given due consideration. The failure is failure to find the right use for the aeroplane.—Ed.]

To reduce the operating costs technical progress is called for in :—

(i) Reduction of fuel consumption—particularly in air-cooled engines.

(ii) The introduction of a cheaper fuel.

(iii) Development of simpler machines needing less maintenance; and

(iv) Investigation and prevention of corrosion in metal.

To these are added an improved power plant (extra weight and cost now permitted) and the introduction of all-metal aircraft (here increased capital cost is permitted). These requirements cover only reduction in cost without increase in pay load per h.p. If it is accepted that costs vary with h.p.—which they do approximately—another method is the increase of pay load carried per h.p. Solutions that offer themselves are the following :—

Increased wing area, a good climbing wing section (i.e., one that will get off well without calling for more power than is required in normal flight), the use of slots, flaps, and similar devices, variable pitch airscrews, and the ground boosting of engines. Increased wing area means reduction of speed—which the author will not tolerate—except perhaps for goods. Better wing sections the author admits to be out of his depth—but he feels that we have not come to the end of possibilities in this direction. Flaps, slots, and the like, are commended for further attention.

Variable pitch airscrews are mentioned as a problem perfectly simple and obvious in principle, which has proved exceedingly difficult to put in practice. It may safely be said that it is not the only line of development suggested in the paper with these characteristics.

The ground-boosted engine offers the opportunity of a great increase in h.p. for getting off, without increase in weight, and permits fitting an engine of the normal output required for cruising only.

With all these developments the author estimates an increase of 25 to 30 per cent. in the weight per h.p. for a given cruising speed—that is 25 lbs. per h.p., as against the 18 of the present for 100 m.p.h. That this is not the whole of the problem is admitted. The designer must still strive to increase the ratio of paying to total load. This must be largely effected by designing a structure lighter than, but at least as strong as, existing ones. [It may be pointed out that possibly it may be necessary to do this in order to cover the weight of the improvements and to compensate for the increased capital charges incurred before equal overall economy in operation can be achieved. It would be extremely rash to say that a machine cruising at 100 m.p.h., and weighing all up 25 lbs. per h.p., could not immediately be produced. But it would be safe to say that it would be less economical a machine than some already in service.—Ed.]

One other point concerning the development of aircraft as the means of improving the state of commercial aviation is considered. The opening comment is one to arouse hope. It states that eventual success must depend on the traffic attracted, but declines to a further indictment of the aeroplane for its lack of comfort—mainly in the matter of air sickness. As a matter of fact air sickness in certain people may result from definite physical cause—among them abnormal accelerations due to too vigorous a manœuvring of the machine in the air. There is very little room for doubt that the main cause of sickness of this type is of a mental and nervous nature. Passengers in fact would not recognise how uncomfortable they really are if their sufferings were less volubly discussed in public.

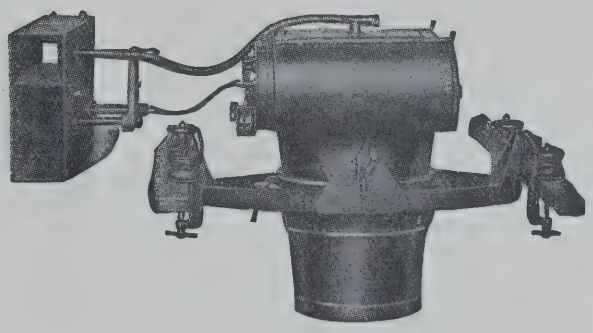
In an attempt to visualise the improvements in economy Sir Sefton takes an aircraft of 18 lbs. per h.p. cruising at 85 m.p.h., 3.5 lbs. per h.p. as useful load and the operating costs he places at 3s. a ton mile—a figure already inferred from his fuel cost figure for the W.8b. In addition he assesses overhead charges, including insurance and depreciation, at 2s. per ton mile. This, it is said, is an imaginary figure, but sufficiently high. If some of the improvements suggested are adopted, fuel costs, it is estimated, could be reduced to one-fifth, engine maintenance to one-half, and machine maintenance to three-quarters, the present figure. This reduces operating costs by more than 50 per cent., say to 1s. 6d. per ton mile. Now increase the total load per h.p. to 24 instead of 18 lbs., and the cost per ton mile falls to 1s. 1½d. per ton mile. Suppose again the ratio of pay load to total is increased from one-fifth to one-sixth—the cost comes down to 10½d. per ton mile. Again, if all these improvements are employed overhead charges must come down. Assuming them to fall from 2s. to 1s. is not considered unduly optimistic. It is admitted that higher capital costs may result—but even allowing 4½d. per ton mile the figure is 2s. 3d. per ton mile for all costs. [It is of course undeniable that if one assumes these things one has assumed them. But still one doubts whether even then the real problem of successful air transport has been touched. In 1924-25, the British Air Lines flew 825,000 miles, received £131,500 in subsidies and carried 13,500 passengers and 507 tons of freight. It is not known how many passengers paid and at what rates, and therefore no accurate estimate of the total results obtained can be formed. It can be shown, however, that Imperial Airways received in subsidy alone enough to pay the whole of their operating costs (at Sir Sefton's rates) and to leave a substantial margin towards overhead costs. They did not make a profit—therefore they failed to earn a revenue even approximating to their overhead charges. This state of affairs might be described in many ways, but the only adjective that may not be applied to it is "commercial."—Ed.]



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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 18; Tuesday, 16; Wednesday, 18; Thursday, 16; Friday, 10, Saturday, 16; Sunday, 0.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 52, passengers 183, freight 15 tons.

AIR UNION:
Paris—London: Machines 30, passengers 154, freight 11 tons.

K.L.M.:
Amsterdam—Rotterdam—London: Machines 9, passengers 40, freight 2 tons.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 2, passengers 1.

SPECIAL MACHINES:

LUFT TRANSPORT JUNKERS:
Berlin—London—Manchester: Machine 1, passengers 3.

Total number of trips by British machines: 52, carrying 183 passengers. Foreign machines: 42, carrying 198 passengers.

Comparative Figures:

For week ending Oct. 4:
Machines, 94; Passengers, 381; Crews, 122; Total personnel, 503.

Corresponding week, 1924:
Machines, 113; Passengers, 484; Crews, 142; Total personnel, 626.

Corresponding week, 1923:
Machines, 79; Passengers, 238; Crews, 108; Total personnel, 346.

Corresponding week, 1922:
Machines, 98; Passengers, 330; Crews, 159; Total personnel, 489.

Corresponding week, 1921:
Machines, 75; Passengers, 227; Crews, 98; Total personnel, 325.

Corresponding week, 1920:
Machines, 131; Passengers, 222; Crews, 152; Total personnel, 374.

Croydon Notes.

The Vickers Vanguard with two 650 h.p. Rolls-Royce Condors arrived at Croydon on Monday of this week. It is being used by Imperial Airways Ltd. for operational tests for the Air Ministry. At present no one seems to know whether Imperial Airways Ltd. pays the Air Ministry for the use of the machine or whether the Air Ministry pays Imperial Airways Ltd. for conducting the tests.

The worst objection to the machine from a traffic point of view is that there is no separate compartment for luggage, which is inconvenient, but this can be rectified temporarily by fitting a bulkhead or wire netting.

Mr. Gordon Olley had his wrist damaged last week by an airscrew. He was trying to start a refractory Siddeley Puma, when it did, and hit him on the wrist.

Mr. Horsey, who was at one time employed as a pilot on the annual service to Guernsey, has now become a landlubber and is flying on the ordinary land machines. He has not flown land machines since 1917.

A Dornier Wal (Rolls-Royce) visited the Marine Branch of Imperial Airways Ltd. at Southampton on Saturday. It was trying to sell itself as a possible commercial seaplane for use when the marine branch breaks out again. The machine arrived from Gothenburg in Sweden with one stop at Norderney in the Friesian Islands to re-fuel.

Just why we should be asked to consider buying foreign flying boats out of our Government Subsidy takes some understanding. We have, in the Supermarine Southampton and in the Short all-metal boats, seagoing aircraft of the best, so there is no need for foreign imports. Trying to sell us flying boats is rather like trying to sell coals to Newcastle when there does not happen to be a coal-strike.

There has been any amount of activity at A.D.C. Aircraft Ltd. lately. Mr. Perry has been dashing into the air on all sorts of craft.—G. D.

The Handley Page Hampstead.

Successful tests were made at Cricklewood with the new Handley Page Hampstead driven by three Armstrong-Siddeley Jaguar engines. Mr. Hinchliffe was the pilot. The machine flew well on one-and-a-half engines.

One gathers that some trouble has been experienced in connection with the exhaust manifolds, which appear to affect the valves—as valve-trouble is rare in Jaguar engines on Service machines to which no manifolds or silencers are fitted. Further experiment appears to be necessary before the machine can be put onto regular service.

As the machine is more or less similar to other Handley Page W.8 types except for the engines, and as it is to be used by Imperial Airways Ltd. primarily for testing the Jaguar under air service conditions, it is not proposed to give scale drawings of it. Ordinary W.8 type scale drawings have appeared in THE AEROPLANE at least four times since the end of 1919.

The original W.8 shown in Paris in December 1919 had two Napier engines of 450 h.p. each. It was designed in the first place for two Cosmos Jupiters of 400 h.p. each—the engine which was subsequently taken over by the Bristol Co. and developed into the present successful Bristol Jupiter.

The W.8bs, produced in 1922, were similar, but had Rolls-Royce Eagles of 365 h.p. each, and were naturally somewhat slower. These have done good work during the past thr years.

The W.8f, known as the Hamilton, has exactly the sa dimensions as the W.8, but has a Rolls-Royce in the no of the fuselage and a Puma on each wing.

The Hampstead is a development from this.

Aeroplane Air Mails—Autumn Suspensions.

The Postmaster-General announces the suspension for the winter the Air Mail services mentioned below. In the case of the Letter A Mails, the relative Route number, as given on page 2 of the curre Air Mail Leaflet (June, 1925), is shown in each instance, togeth with the date, in brackets, of the last relative despatch from London: Route 2, the direct letter Air Mail to Switzerland (serving also Ital and the 6.15 a.m. letter Air Mail to Paris (Thursday, Oct. 1).

Route 4 B, the Königsberg-Helsingfors service (Tuesday, Sept. 29) but the morning Air Mail from London to Berlin (Route 4 A) wi continue to give advantage, on days of regular flight, for letters Memel, Lithuania, Lettonia, and Estonia posted after the nigh Mail despatch from London of the previous evening; and both th Air Mail (Route 4 A) and the 6 p.m. Air Mail from London vi Rotterdam to Copenhagen (Route 6) can continue for the present to b used for letters to Finland.

Route 5, the 6.15 a.m. letter Air Mails to Hamburg, Copenhage (for Denmark and Norway), and Malmo (for Sweden) (Saturda Oct. 3)—but Route 6 will remain available, for the present, for lette to the destinations and countries referred to.

Route 7 B, the 6.15 a.m. letter Air Mail to Morocco and Weste Algeria (Thursday, Oct. 1).

Air Parcel Post.—The air parcel service to Switzerland will b suspended for the winter after the morning despatch from Londo of Thursday, Oct. 1.

PERSONAL NOTICES.

DEATH.

HOGBEN.—On Oct. 5, as the result of a flying accident on Oct. at Kohat, India, Edgar Thomas O'Neil Hogben, Flg. Off., No. (Army Co-operation) Sqdn., R.A.F.

Mr. Hogben was a Lieut. in the R.G.A. and was seconded to th R.A.F. in May, 1923. After a twelve months' course at No. 1 F.T.S Netheravon, he was posted to the School of Army Co-operation Old Sarum. He joined No. 20 (Army Co-operation) Sqdn. at Peshawa in September, 1923.

BIRTHS.

BORTHWICK-CLARKE.—On Sept. 24, at No. 1 Flat, West En Buildings, Ruislip, to Dorothy, wife of Flg. Off. E. S. Borthwick Clarke (*neé* Millward)—a daughter.

KEITH.—On Sept. 27, at 33, Brixton Hill, S.W.2, to Angel (*né* Montgomery), wife of Sq. Ldr. C. H. Keith, R.A.F., of Pelling Cottage Old Windsor—of a son (Colin John Hilton).

THEAK.—On Sept. 26, at Andover, to Florence, wife of Flt. Lt. W. E Theak, R.A.F.—a daughter.

WILKINS.—On Sept. 13, at 58, Norbiton Avenue, Kingston-on Thames, to Lilian, wife of J. S. Wilkins, Flg. Off., R.A.F.—a daughter

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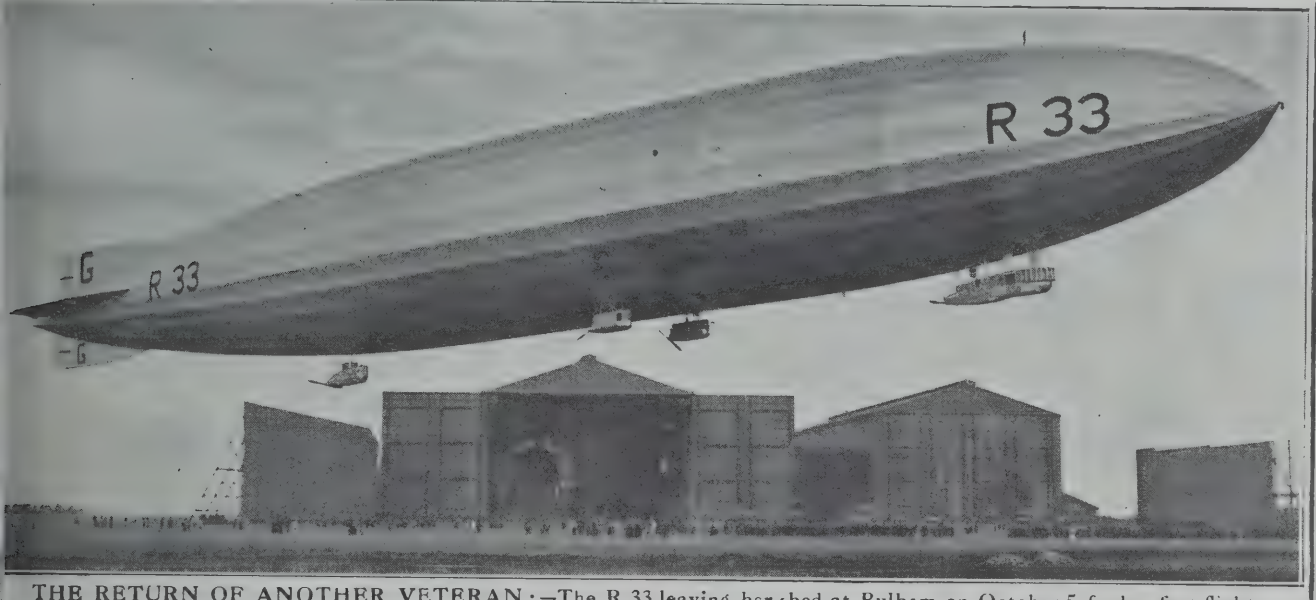
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Edited by C. Gorey

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OCT 28 1925

"AND AFTER HEALING OF HIS GRIEVOUS WOUND "HE COMES AGAIN;" (*Tennyson: The Passing of Arthur.*)



THE RETURN OF ANOTHER VETERAN:—The R.33 leaving her shed at Pulham on October 5 for her first flight after the repair of her nose which was smashed when she broke away from her mast in a gale last April. The bravery of the little man standing on the roof of the ship just above the "R" should be noted. The R.33, like the Bamel, seems constantly to wake into new life

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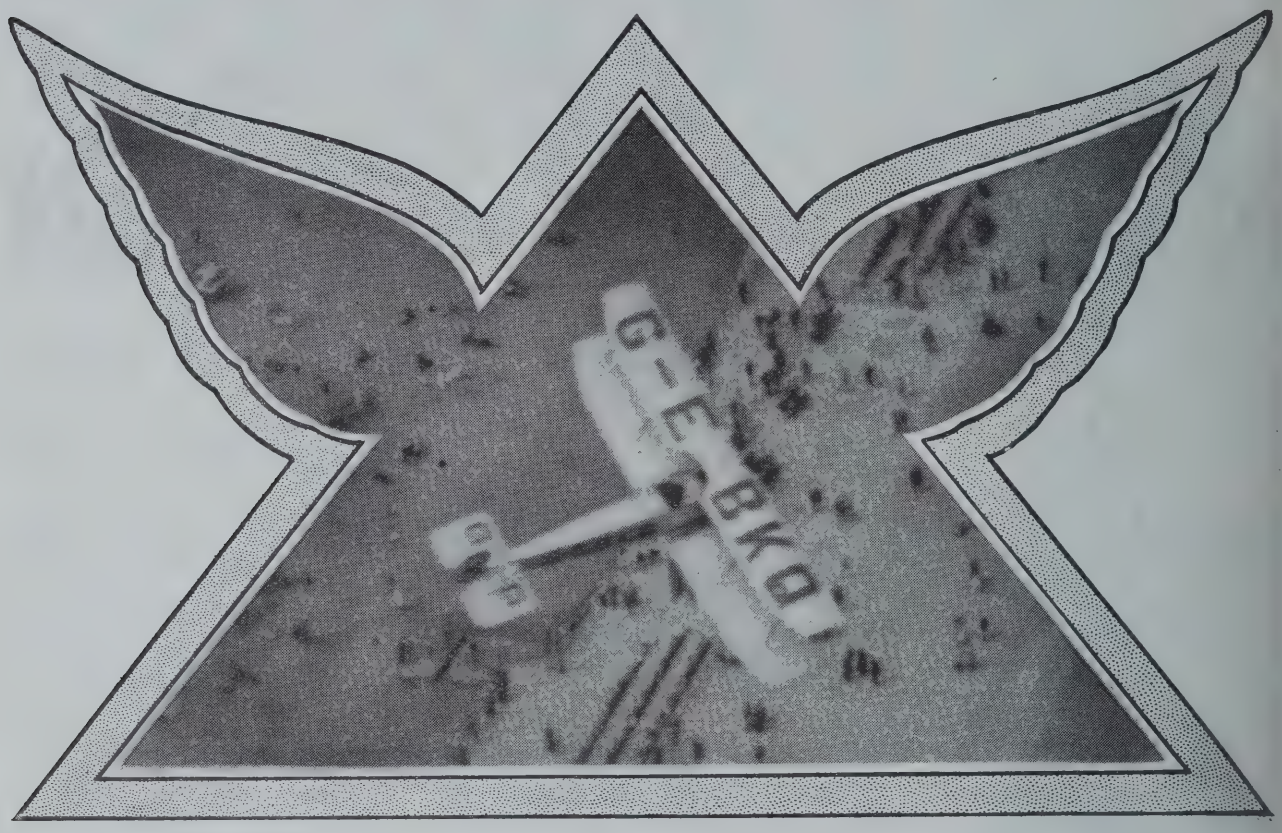
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ON THE AMERICAN AIRCRAFT BOARD.

History always repeats itself. The human mind is singularly unoriginal and though details vary events happen in much the same sequence under similar conditions. Apparently the process by which the Royal Air Force came into being as a separate Service during the War 1914-18 is being repeated in the United States, the conditions of Peace and of the Trans-Atlantic temperament merely varying the process.

Roughly speaking, the method by which the R.A.F. came into being was as follows :—

First of all the pilots of the R.F.C. in France were shot down in undue quantities by German aviators on the war products of our friend Mr. Anthony Fokker and simultaneously the Royal Navy steadfastly refused to make any use of its own Royal Naval Air Service. The consequence was a violent agitation led by Lord Montagu of Beaulieu, Mr. W. Joynson Hicks (now Sir William, and Home Secretary in the present Government) and Mr. Pemberton Billing and sundry minor lights, some of them very much under a bushel.

Thereafter came an Air Inquiry before a Commission of brave and reverend signors, which duly issued a carefully composed report whitewashing those in authority.

Following that an Air Board was appointed to correlate and co-ordinate the supply of aircraft to the two Services.

Then came an Air Board with still greater powers which organised a huge staff and took over the Hotel Cecil, which was soon nicknamed the Hotel Bolo—in allusion to Bolo Pasha who was shot as a spy in France—because it was generally believed that all the crowd of officials under the Air Board were either actively interfering with the progress of British aviation (much as our Air Ministry experts do to-day) or else were merely idle spectators of the War in the Air.

The Air Board in due course developed into an Air Ministry. And under the Air Ministry the Royal Air Force became a separate Third Service and ultimately our official First Line Defence.

The American nation has not yet progressed so far as the Third Service idea. But up to the present the progress of American aviation has followed very much the course of British aviation.

During the last few years inadequate numbers of airplanes have been ordered and undue numbers of aviators have been killed.

To-day the U.S. Army Air Service, although it has the fastest pursuit ships in the World, only has a dozen or so of them. The bulk of the pilots of the U.S. Army are mounted on airplanes designed in England in 1916 and equipped with engines designed in America in 1917.

The U.S. Naval Air Service, though it has several different types of flying boats and float-seaplanes and land-going airplanes which are of excellent design, and has ship-board catapults far in advance of anything which we have, has an entirely insufficient supply of aircraft. Such as it has are used purely on the assumption that naval warfare of the future will be conducted very much on the lines of fifty to one hundred years ago. And the uses of naval aircraft are subordinated in every way to the ideas of senior naval officers who were about contemporary with Admiral Dewey at Manila.

There is a slight difference between the British and the American series of events owing to the fact that the airplanes and airships of both the American Services have been used largely as advertisement posters for their respective Services, a purpose for which they were not used in England. To that extent America is rather to the good, because, in spite of everything, the American public has become interested in aviation whereas in this country our official people always did everything possible to prevent the Public from becoming interested, until the Air Staff invented the R.A.F. Pageant.

As the result of this unsatisfactory state of affairs a violent agitation has been going on in the States for a considerable time, just as it did in this country at the end of 1915 and the beginning of 1916, the leader (as explained last week) being Colonel William Mitchell, who has played very much the part played in this country by Mr. Pemberton Billing.



DEUTSCHLAND UBER PALACE.—A clever faked photograph by the Surrey Flying Services of the three-engined Junkers monoplane flying over Croydon with the Crystal Palace under its wing in the background.

This agitation has now had its proper result in the sequence of events.

President Coolidge announced on Sept. 12 that he had appointed an Air Board—" for the purpose of making a study of the best means of developing and applying aircraft in national defence and to supplement the studies already made by the War and Navy Departments on that subject."

The phrase quoted is contained in a letter sent to the President by Mr. Curtis D. Wilbur, Secretary of the Navy, and Mr. Dwight F. Davis, Acting Secretary of War, who recommended the inquiry, evidently in self-defence.

The Board is composed as follows :—

Maj.-Gen. James G. Harbord, retired, of New York City; Rear Admiral Frank F. Fletcher, retired, of Washington, D.C.; Dwight W. Morrow, of Englewood, N.J., lawyer and banker; Howard E. Coffin, of Detroit, consulting engineer and expert in aeronautics; Col. Hiram Bingham, of New Haven, Conn., Senator, formerly in the air service and member of the Senate Committee on Military Affairs; Hon. Carl Vincon, of Milledgeville, Ga., member of the House Committee on Naval Affairs; James S. Parker, of Salem, N.Y., Chairman of the House Committee on Interstate and Foreign Commerce; Hon. Arthur C. Denison, of Grand Rapids, Mich., Judge of the Sixth Circuit Court of Appeals; William F. Durand, of Los Angeles, Calif., President of the Institute of Mechanical Engineering, member of the National Advisory Committee for Aeronautics.

Of the gentlemen named only two are at all well known as having been connected with aviation in the past. Mr. Howard Coffin was Chairman of the Aircraft Production Board, which was formed in the States to accelerate the production of aircraft when America went to war in 1917. He is extraordinarily astute, both as a financier and as a moving spirit in what one might call engineering and aeronautical politics. And Mr. William Durand, has visited this country as a member of the U.S. National Advisory Committee for Aeronautics.

This Board corresponds pretty well to our Committee of Inquiry which sat during the Spring and Summer of 1916 as it is to hold an inquiry into the charges made by Colonel Mitchell and others. Its creation is a happy omen for the progress of American aviation.

In due course it will doubtless whitewash the administration of the U.S. Army and Navy. This is right and proper in view of the maintenance of discipline in the U.S. Air Services and in order to obtain the confidence of the free and independent electors of the United States.

Doubtless it will recommend the formation of some kind of permanent Advisory Committee to co-ordinate the design and supply of aircraft, somewhat like our original Air Board and like the Aircraft Production Board in the States during the War. In all probability Mr. Howard Coffin will be chosen President of that Committee by virtue of his previous experience.

After that will probably come an Air Board with executive powers and in due course a proper Air Bureau will be created at Washington parallel with the Army Bureau and the Navy Bureau.

Then a U.S. Air Force will come into being. But probably just by way of a variant of the English system the U.S. Navy will retain its own Fleet Air Arm and the U.S. Army will retain an Army Co-operation Air Service. But there will almost certainly be an Independent Service to which will be committed the bigger affairs of air war and the air defences of the coast.

Three or four years hence there will be interest in looking back to these notes and seeing how nearly they approach the truth.—C. G. G.

WEMBLEY AGAIN.

The Torchlight Tattoo at Wembley has been extended indefinitely and the performances will probably continue until the end of the month. The whole show is even better than it was a few weeks ago as there is more variety in the programme, which now includes a short but lively display of Highland dancing. The ever-retiring Senior Service have now been persuaded to do their well-known little turn consisting of dragging a few guns into the arena, firing them off, and taking them home again. One believes this turn was originally performed in South Africa.

The Royal Air Force gymnastic and torchlight evolutions could not be better and everyone who is interested in the R.A.F. (and who is not, judging by the roars of applause?) will be interested to hear that by Oct. 15, fifty per cent. of the personnel will have been replaced by fresh recruits.

It is unnecessary to say that there is no slackening in the Army's part of the show. The musical drive of the guns is magnificent and the massed bands as perfect as ever.

To those who are in doubt about the meteorological conditions of October for an out-door performance, let it be said that it is not cold or damp in the Stadium, there are plenty of every sort of seats, and even on foggy evenings in London it is quite clear at Wembley.—C. M. MCA.

THE CIERVA AUTO-GIRO.

On Monday, Oct. 12, Mr. Frank Courtney tested at Farnborough the " Auto-Giro " flying machine invented by Señor Don Juan de la Cierva. The machine consists of an Avro fuselage rudder and tail. Instead of a main plane however there is a revolving helix which is made to revolve by the forward motion of the machine through the air. This helix is started in the first place by a cord wound round it, which, when pulled, spins the helix as a string spins a top.

Previous to testing the machine Mr. Courtney was somewhat sceptical as to its possibilities but after the test he was convinced that it works. Though the present machine is only a make-shift, Mr. Courtney considers that ultimately the auto-giro system may prove to be of serious value in aviation.

On Monday he made a couple of flights on the machine going up to a height of about 1,000 feet. He states that no skill whatever is required to fly the machine other than that necessary to move the rudder bar with the feet. He found that it was possible to bring the machine down absolutely vertically onto the ground with but a slight bump and when the helix has begun to spin properly the machine will take off in about five yards.

It would seem certainly that the machine is worth further experiment, and the money allocated to Mr. Brennan's attempt might be transferred with advantage to Don Juan.

A MISHAP TO THE SUPERMARINE-NAPIER S.4

During a gale in Baltimore on Sunday some damage was done to the shed containing the British Schneider Trophy machines. A pole was dislodged which hit the tail of the Supermarine-Napier S.4, damaging the tail-plane. Fortunately the damage is not serious and the machine will be ready again in plenty of time for the race on Saturday week.

HIGH-SPEED PHOTOGRAPHIC SCOUTING.

Details of a development in aerial photography which should speed up scouting in modern warfare to a remarkable degree have now been released by the Eastman Kodak Research Laboratories.

A reversible film, known as " ana-positive," has been evolved by the Kodak laboratories, under the direction of Dr. C. E. Kenneth Mees, working in co-operation with the U.S. Army Air Service. It has been tested by Lieut. George W. Goddard, of the Army Air Service, and Dr. G. M. Burka, U.S. Government Physicist.

The air scout of the future, according to Dr. Burka, instead of returning to his base with undeveloped plates or films, will be able to take photographs of enemy trenches, transport or artillery positions, develop them in mid-air, and drop the finished pictures at given points. He will then continue his reconnaissance without alighting.

This will enable actual photographs of a target to be taken and placed at the disposal of the artillery within a few minutes.

The secret of the film is that the image, when developed, is negative by transmitted light and positive by reflected light. Consequently, it presents a clear positive picture, while any number of prints can be made from the negative. Tubes for developing, fixing and washing are installed in the observer's compartment, the " dark-room " consisting of a light-proof covering over the tubes with sleeves for the photographer's arms. Drying is done in the air.

All of which fits in beautifully with one's own theories of air scouting of the future as enumerated in certain remarks on our recent Army Manœuvres.

INFORMATION ON AIR SURVEY.

To-morrow, Thursday, Oct. 15, Major Charles Kennedy-Cochran-Patrick, D.S.O., M.C., will read a paper on Air Survey to the Royal Aeronautical Society in the library at 7, Albemarle Street, at 5.30. In view of the fact that air survey is to-day about the one branch of Commercial Aviation which really pays for itself and because Major Patrick carried out most of the flying for the recent highly successful air survey of the Irrawaddy Delta this paper should be of unusual value and all readers who can possibly get away that afternoon should attend.

The paper should be particularly interesting to pilots because the success of air surveys already made is encouraging the organisation of fresh surveys all over the World and one feels sure that there will be a big demand for air survey pilots long before there is an equal demand for air line pilots. Therefore any civilian pilots, including any of those of Imperial Airways who may have ambitions beyond doing air line work, and any R.A.F. pilots who happen to be on leave in Town, should certainly attend.

Also aircraft constructors and designers will learn much from Major Patrick about the particular kind of aeroplane which is desirable for such work. One hopes that employers who wish to encourage a proper understanding of their job among their designing staff will grant special leave for the occasion.

World Record

A British Seaplane Triumph

364·924 kilometres per hour

The Supermarine-Napier *S.4* Seaplane, flown by Captain H. C. Biard, on 13th September, 1925, over three kilometres, officially observed by the Royal Aero Club, attained an average speed of **364·924 kilometres per hour** (226.752 miles per hour).

The Fédération Aeronautique Internationale has passed this performance as a World Record.

This beats the previous record for seaplanes over the same distance by more than **62 kilometres per hour** (38 miles per hour).

The Supermarine-Napier *S.4* is fitted with a Napier "Lion" aero engine.

For World records, racing, Naval, Military and commercial purposes, the Napier "Lion" is the proved best.

NAPIER

WATER-COOLED
AERO ENGINES

D. NAPIER & SON LTD.

Acton, London, W.3

The last three Aerial Derbys have been won by Gloster machines fitted with Napier engines

THE ROYAL AIR FORCE.

The London Gazette.

Oct. 6.

General Duties Branch.—Wing Cdr. J. B. Bowen, O.B.E., relinquishes his appointment as Deputy Director, Air Ministry (July 31).

The following are granted S.S. comns. as Plt. Offs. on probation, with effect from and with seniority of the dates indicated:—P. R. Barwell, J. E. Bolt, E. G. Cayley, F. G. Downing, P. G. S. Gardiner, K. Garston-Jones, R. E. Hall, C. H. Jones, H. C. Kelly, G. W. Tuttle, S. H. White, W. L. Whitlock (Sept. 28); I. A. Anderson, F. F. Barrett, F. N. Garthwaite, D. J. Harrison, E. A. T. Murray (Sept. 30).

The following Plt. Offs. on probation are confirmed in rank (Sept. 14):—J. H. Barringer, J. S. Blomfield, E. E. Fallick, A. R. Feather, J. C McE. Gibb, D. W. Gibbon, C. Heard-White, G. N. Hoar, J. W. M. Nancarrow, V. T. Norwood, A. L. R. Page, L. T. Pankhurst, S. C. Parker, C. H. Roberts (Lt., A. and S. Hldrs., R.A.R.O.), E. G. H. Russell-Stracey, W. R. J. Spittle, F. B. Tomkins, C. J. Veevers, P. V. Williams.

The following Plt. Offs. are promoted to the rank of Flg. Off. with effect from the dates indicated and with seniority of the dates indicated in brackets:—H. M. Whittle, Sept. 15 (Mar. 15); J. H. C. Wake, Sept. 17 (Mar. 17). The following Plt. Offs. are promoted to the rank of Flg. Off.:—P. Stainer (July 10); B. F. H. Harding (Oct. 3.).

Sq. Ldr. R. L. G. Marix, D.S.O., is restored to full pay from half-pay (Sept. 26).

The following are placed on half-pay, Scale A:—Group Capt. P. B. Joubert de la Ferté, C.M.G., D.S.O. (Oct. 4); Flt. Lt. G. C. O'Donnell, D.F.C. (Sept. 20).

Flt. Lt. W. H. Ellison is placed on the retired list on account of ill-health (Oct. 7).

The following Flg. Offs. are transferred to the Reserve, Class A, Oct. 5:—W. J. Buchanan, D.F.C.; C. W. Cudemore, M.C., D.F.C.

Flg. Off. (Hon. Flt. Lt.) H. M. Burrows (Lt., R.N., retd.), resigns his S.S. comn. (Sept. 28); Flg. Off. P. L. Binns (Lt., R. Yorks. Regt.), relinquishes his temp. comn. on return to Army duty (Sept. 25); Wing Cdr. N. G. Darnell (Bt. Maj., K.S.L.I.), relinquishes his temp. comn. on being placed on half-pay (Army), on account of ill-health (Sept. 30); Sq. Ldr. A. R. Boyle, O.B.E., M.C. (Capt. A. and S. Hldrs.), relinquishes his temp. comn. on retiring from the Army on account of ill-health caused by wounds, and is permitted to retain his rank (Aug. 1).

Flg. Off. D. P. Hadow, M.C., is dismissed the service by sentence of General Court Martial (Sept. 21).

Medical Branch.—The following Flg. Offs. are promoted to the rank of Flt. Lt., Oct. 8:—T. V. O'Brien, M.B.; F. W. G. Smith, M.B., B.A.

Reserve of Air Force Officers.—The following are granted comns. in Class A.A., General Duties Branch, as Plt. Offs. on probation:— H. C. Barrett (Sept. 28); H. Wood, W. J. Youldon (Sept. 30).

The following Plt. Offs. are confirmed in rank (Oct. 1):—R. A. Jacquot, A. J. Stubbings.

Flg. Off. J. C. Dunbar is transferred from Class A to Class C (June 28). Flt. Lt. J. O. Groves relinquishes his comn. on account of ill-health, and is permitted to retain his rank (Oct. 7). Flg. Off. T. C. Lowe, M.C., relinquishes his comn. on account of ill-health (Oct. 7). Plt. Off. C. A. J. Goodfellow relinquishes his comn. on account of ill-health (Oct. 7).

Appointments.

Week ending Oct. 12.

General Duties Branch.—Air Commodore E. R. Ludlow-Hewitt, C.M.G., D.S.O., M.C., to R.A.F. Depot pending commencement of Course at R.N. College, Greenwich, 1/10.

Wing Commander A. H. S. Steele-Perkins, O.B.E., to R.A.F. Depot on transfer to Home Estab., 31/8.

Squadron Leaders C. B. Cooke, to R.A.F. Depot on transfer to Home Estab., 22/10. W. J. Ryan, C.B.E., to No. 99 Sqdn., Bircham Newton, 1/10. H. F. A. Gordon, O.B.E., to Air Ministry, 10/10. L. T. N. Gould, M.C., to No. 100 Sqdn., Spittlegate, 24/9. J. McCrae, M.B.E., to H.Q., Inland Area, 9/10. G. H. Hall, A.F.C., to No. 5 F.T.S., Sealand, 5/10. F. E. Hellyer, O.B.E., to R.A.F. Depot, 6/10.

Flight Lieutenants C. B. Dalison, A.F.C., L. L. MacLean, M.C., F. A. Norton, L. M. Iles, A.F.C., and C. E. Maitland, D.F.C., to R.A.F. Depot, 6/10. H. V. Drew, A.F.C., to No. 24 Sqdn., Kenley, on transfer to Home Estab., 23/10. J. O. Foden, A.F.C., to remain at No. 58 Sqdn., Worthy Down. A. W. Symington, M.C., to No. 6 Arm. Car Coy., Iraq, 11/9.

Flying Officers L. Martin, to Flying Boat Development Flight, Felixstowe, 9/10. T. Marchant, to Reception Depot, West Drayton, 12/10. M. S. Keogh, A.M., to Aircraft Depot, India, 2/10. F. W. Foster, D.F.C., D.S.M., to No. 28 Sqdn., India, 2/10. (Hon. Flt. Lt.) R. Stiven, to No. 60 Sqdn., India, 2/10. G. W. Birkinshaw, to R.A.F. Depot, 6/10. R. L. Palmer, to No. 1 F.T.S., Netheravon; 12/10. G. M. Trundle, to Heliopolis Details, Egypt, 27/8. J. L. Hayward, to School of T.T. (Men), Manston, on transfer to Home Estab., 8/10. (Hon. Flt. Lt.) F. B. Lawrie, to Inland Water Transport, Iraq, 11/9. N. T. Goodwin and C. C. Harris, to Aircraft Depot, India, 9/9.

Pilot Officers H. W. Raeburn, H. B. Barrett and D. J. Lloyd, to Aircraft Depot, India, 9/9. E. Miller, to No. 216 Sqdn., Egypt, 15/9. G. D. Green, to No. 5 Sqdn., India, 2/10. L. Dalton-Morris, G. D. Harvey and R. J. Stevens, to No. 7 Sqdn., Bircham Newton, 12/10. J. A. C. Florence, A. H. Frost and J. S. Georgeson, to No. 9 Sqdn., Manston, 12/10. The undermentioned Pilot Officers are all posted on appointment to S.S. Comns. (on probation), 28/9:—P. R. Barwell, F. G. Downing and G. W. Tuttle, to No. 19 Sqdn., Duxford. J. E. Bolt, E. G. Cayley and R. E. Hall, to No. 29 Sqdn., Duxford. J. L. Chadwick, to No. 111 Sqdn., Duxford. G. P. S. Gardiner, C. H. Jones and W. L. Whitlock, to No. 23 Sqdn., Henlow. K. Garston-Jones, H. C. Kelly, and S. H. White, to No. 3 Sqdn., Upavon. H. F. Gower, to No. 111 Sqdn., Duxford, on appointment to a S.S. Comn. (on probation), 30/9. I. A. Anderson, F. F. Barrett, F. N. Garthwaite, D. J. Harrison and E. A. T. Murray, to No. 17 Sqdn., Hawkinge, on appointment to S.S. Comns. (on probation), 30/9.

Medical Branch.—Flying Officer A. F. Cook, to R.A.F. Hospital, Cranwell, 9/10. Flying Officer (Dental) N. F. Smith, to Electrical and Wireless School, Flowerdown, 5/10.

Stores Branch.—Flight Lieutenant J. Lundon, to Stores Depot, Egypt, 5/9. Flying Officers R. G. Fussell, to No. 47 Sqdn., Egypt, 5/9. G. Scarrott, to H.Q., Special Reserve and Auxiliary Air Force, 9/10. H. C. Haywood-Gibbons, to No. 4 Stores Depot, Ruislip, 19/10. R. D. Lambert, to R.A.F. Depot, 22/9. L. N. Sargent, to R.A.F. Depot, 13/10.

A Service Cruise.

According to an Air Ministry Communiqué a most instructive and successful cruise has recently been carried out by No. 480 (Coastal Reconnaissance) Flight, R.A.F., stationed at Calshot.

The Flight has recently been equipped with Supermarine Southamptons (450 h.p. Napier Lions).

The composition of the Flight for this cruise was four of the Southampton machines and the duration of the cruise was from Sept. 3 to Sept. 23. The machines operated in conjunction with H.M. Cruiser *Calliope* and two destroyers.

The itinerary was as follows:—

R.A.F. Base, Calshot, to Portland and thence to Cattewater, Plymouth, Cattewater to Pembroke; where the flying-boats secured to moorings and refuelled from the destroyers.

Pembroke to Carrickfergus, Belfast Lough. *En route* an exercise was carried out with H.M. ships.

One flying-boat was forced to land near Wicklow Head owing to slight engine trouble and was taken in tow by H.M.S. *Calliope*; arriving safely at Carrickfergus the following day.

Three flying-boats then proceeded to Campbeltown, where exercises were continued with H.M. ships The fourth machine was left behind at Belfast for repairs.

Throughout this period, bad weather was experienced, the wind at times reaching gale force, with rain and low clouds. Visibility at times was reduced to 200 yards, with clouds as low as 100 ft.

During a gale on Sept. 15, the three flying-boats landed safely at Campbeltown on completion of an exercise, and refuelled from H.M.S. *Calliope* without any difficulty while the gale was still at its height. All flying-boats handled well on the water and rode well at their moorings.

The Communiqué says: "From Sept. 16 to 22 demonstration flights were carried out over such places as Ardrossan, Ayr, Oban, Greenock, Gourock, Glasgow, Belfast, and other towns in the Belfast Lough. Much local interest was displayed at these places, in some cases the whole town turning out to watch the flying-boats."

[One has heard that the North of Ireland is overrun with Scotsmen, but this is the first intimation of the wholesale transfer of Scottish towns to Belfast Lough.—Ed.]

The Communiqué goes on to state that the Flight left the Naval Forces at Campbeltown on the 21st, and flew to Belfast. Here they joined another Southampton which had flown from Felixstowe, on Sept. 19, to Plymouth, and thence to Belfast on the 21st, with Air Vice-Marshal Scarlett and Air Commodore Newall, a crew of four and luggage on board.

The next day four of the machines made a demonstration formation flight over Belfast in a high wind and rain.

The Flight left for Calshot on Sept. 23. Two machines made a non-stop flight, covering a distance of 510 miles in 5¾ hours; the remaining two visited ports on the way home.

The total distance covered by the Flight during the cruise was approximately 10,000 miles,—(2,500 miles per machine).

The Air Vice-Marshal's boat, with the same passengers and crew, left for Cromarty on the 22nd against a strong northerly wind and rain. The weather was so bad that they were forced to land at Oban the clouds being too low to allow of a crossing being made via the Caledonian Canal. On the following day conditions had improved and the machine reached Cromarty. Here the A.O.C. Coastal Area visited the Commander-in-Chief, Atlantic Fleet.

On the 25th the machine left for the Firth of Forth, so that the A.O.C. could inspect some of the Scottish units of the Coastal Area Command. After a total flight of 610 miles Felixstowe was reached safely the same evening at 8 p.m., the pilot landing in the dark under extremely difficult circumstances. The total flying time taken from Cromarty to Felixstowe was slightly over 8 hours.

The Communiqué adds that refuelling at sea was carried out on all occasions without a hitch.

A Research Award.

The following officer, who was selected for the Aeronautical Research Course "C" at the Imperial College of Science and Technology in October, 1922, has presented a thesis to the Board of Studies of the College and has been awarded the diploma of the Imperial College for advanced study and research:—Flg. Off. C. J. Sims, D.F.C., R.A.F.

Very Senior Service.

The following appeared in *The Daily Telegraph* on Oct. 8:

During a discussion as to the terms of a protest to be sent to the commandant of the Royal Air Force at Hawkinge Aerodrome as to alleged low flying over the west end of Folkestone, Councillor Engineer Vice-Admiral Stevenson said the aeroplanes were not only dangerous but terrifying to women and children. It was not the fault of the authorities that the young officers "asked" for accidents. The only way he could account for it was that arrangements were made by the young flying officers with girls they had met at the hotels the night before.

No doubt the Admiral was speaking from memory. But aeroplanes are not picket-boats.

SEAPLANE SPEED RECORD

THE FAIREY - REED
ALL-METAL
AIRSCREW

WAS AN ESSENTIAL FACTOR IN THE SEAPLANE WORLD'S SPEED RECORD RECENTLY OBTAINED WITH THE SUPERMARINE S.4, VIDE THE FOLLOWING PRESS EXTRACT:

"In writing of the new British World's record one should not forget to make reference to one other very important factor in the success, i.e. the FAIREY-REED duralumin propeller, without which the direct drive, at the high speeds of revolution at which the Napier racing engine runs, would not have been possible."

"Flight," Oct. 8th.

SOLE MANUFACTURERS:

THE FAIREY AVIATION CO., LTD.,

HAYES, MIDDLESEX. **HAMBLE, SOUTHAMPTON.**

No. 58 Squadron Dinner.

On Saturday, Oct. 10, No. 58 Bombing Squadron held its Annual Dinner at the Savoy, about twenty being present. The Chair was taken by Wing Cdr. J. H. S. Tyssen, M.C., who as a Major R.F.C. transformed the squadron from a training squadron to a night-flying active service squadron in 1917 and took it to France.

Several members of the original squadron were present and the Chairman was supported by Sq. Ldr. A. T. Harris, A.F.C., and Sq. Ldr. W. H. Longton, D.F.C., A.F.C., who command the two sections of 58 Squadron on its present establishment. The after-dinner speeches were commendably brief and were concerned entirely with the domestic affairs of the Squadron.

Afterwards the diners were joined by their womenfolk and adjourned to the ballroom. Credit for a highly successful evening is due to Mr. C. H. Brewer, the Dinner Secretary.

No. 18 Squadron Re-Union Dinner.

The fourth annual Re-union Dinner of No. 18 Sqdn., R.F.C. and R.A.F., will be held in London on Nov. 7. The time and place will be notified later on.

Tickets will be approximately 5s. each and the hon. secretary will be very glad if those who propose to attend will let him know as soon as possible in order to facilitate catering arrangements.

Applications should be addressed to J. Fuller, The Nower, 53, Berkhampstead Avenue, Wembley.

Association Football.

The Royal Air Force XI played their third match of the season on Oct. 8, against the Spartan League XI at Halton—the result being a win for the Spartan League by 3 goals to 2.

With only two minutes left for play and the score 2—2, the R.A.F. were unlucky to lose—especially after leading 2—1 at half-time—but miskicks by the backs resulted in the first defeat of the season.

The stamina of the team has greatly improved—but they are too slow, and whilst showing flashes of brilliance, are generally scrappy and without any combined method of attack.

A fast-moving forward line, with plenty of understanding and combination, can only be obtained by the R.A.F. team if they will use their brains and talk problems over when ever possible and especially before a game.

Another thing the team will do well to practise is ball control—at present there is too much wild kicking and inability to kick the ball for the first time with any certainty of direction. High kicks are generally useless and cause a waste of energy to the whole team. Even the goal kick is more profitable if sent deliberately to a certain individual. Therefore the standard of the R.A.F. team should at least require a player who can kick intelligently from all angles.

The team was as follows :—

Flg. Off. Hadley (Coastal Area H.Q.); AC. Owens (Calshot), Flt. Sjt. Fretwell (Hawkinge); Cpl. Pennicott (Digby), Flg. Off. Dickson (Cranwell), Cpl. Aitken (Cranwell); Sjt. Francis (Cranwell), AC. Bishop (Henlow), AC. Parrish (Uxbridge), Flg. Off. Williams (Cranwell) (Captain), AC. Morris (Halton).

The next match is against the F.A. Amateur XI at Cranwell on Wednesday, Oct. 21, 1925.

R.A.F. Golf.

The fourth annual championship meeting of the R.A.F. was played on Sept. 29, 30 and Oct. 1 over the course of the Camberley Heath Club.

On the first day a 36-holes stroke round was decided which, besides defining the winners of several minor events, qualified eight players for the championship proper. The results of the second day's play were :—

First Round.—Sq. Ldr. C. H. Hayward (holder) beat Sq. Ldr. Lowe by 4 and 3. Air Vice-Marshal Munro beat Sq. Ldr. Parr by 3 and 2. Flg. Off. Gough beat Flt. Lt. Hope by 1 hole. Flt. Lt. Fawcus beat Flt. Lt. Clarke by 4 and 3.

Semi-final Round.—Hayward beat Munro by 3 and 2. Fawcus beat Gough by 4 and 2.

The results of the singles and foursomes bogey competitions were :—

Singles.—Division I (handicaps 10 and under).—Sq. Ldr. C. H. Hayward (+1), 1 up; Flg. Off. Gough (4), and Flg. Off. Hope (4), all square.

Division II (handicaps 11 to 18).—Wing Cdr. Barratt (14), 6 up; Flg. Off. Fulford (18), 1 up; Flt. Lt. Powell (18), Group Capt. Forbes (18), Group Capt. Milles (14), and Flt. Lt. Wann (12), all square.

Foursomes.—Flg. Off. Steggals (13) and Flt. Lt. Powell (18), all square; Wing Cdr. Robinson (18) and Flg. Off. Bird (10), all square; Air Commodore Holt (12) and Sq. Ldr. Vachell (9), 1 down; Group Capt. Forbes (18) and Group Capt. Mills (14), 2 down.

Steggalls and Powell won the tie, making the best return for the last nine holes.

Sq. Ldr. C. H. Hayward won the Royal Air Force Championship for the fifth successive year on the third day. In the final round he beat Flt. Lt. Fawcus by seven holes up and six to play. The latter was only one down to the winner at the end of the morning round, but he could not hold him in the afternoon, and after being five down at the turn was beaten on the 12th green as stated.

A Singles competition, in two divisions, with a scratch prize as well, and a Foursome stroke competition were also decided. The results were :—*Stroke Round (Senior).*—Sq. Ldr. Lowe, 81—3=78; Sq. Ldr. C. H. Hayward, 77+2=79; Sq. Ldr. Smith, 87—8=79. Junior.—Wing Cdr. Barratt, 83—11=72; Flt. Lt. Whittaker, 94—16=78; Flg. Off. Fulford, 98—18=80.

Scratch Prize.—Sq. Ldr. C. H. Hayward, 77; Sq. Ldr. Lowe, 81; Flt. Lt. E. A. Fawcus, 82.

Foursomes.—Flt. Lt. Whittaker and Flt. Lt. Cooke, 87—13=74.

AN AUSTRALIAN CITIZEN AIR FORCE.

In a publication issued by the Australian Air Board the conditions are laid down for the training of pilots for the Citizen Air Force, a Reserve branch of the Royal Australian Air Force.

Applicants must be British subjects and between the ages of 18 and 23. They must also be physically fit and of a good educational standard. They must undertake to serve for eight years with the Royal Australian Air Force, four years of which may be in the Citizen Air Force and the remainder in the Reserve.

A four-months' course of flying instruction will be given which successful candidates will enter as Cadets or Pilot Officers. The first course will begin on Dec. 1, 1925.

All pupils undergoing the course will receive pay at the rate of 10s. a day irrespective of rank.

CAPTAIN SCARONI'S APPOINTMENT.

His many friends in England will be interested to hear that Captain Scaroni of the Italian Embassy, who was for so long Military Air Attaché to the Italian Embassy in London, has been appointed Air Attaché to the Italian Embassy at Washington in succession to Captain Mario Calderara of the Italian Navy, who has hitherto held that post.

STEEL CONSTRUCTION.

The Daily Telegraph of Oct. 12 states :—

The Armstrong Construction Company Limited, who are associated with Sir W. G. Armstrong, Whitworth, and Company Limited, have been entrusted by the Air Ministry with the construction and erection at Karachi of one of the largest airship sheds in the world.

The whole of the steelwork for the structure will be fabricated at the company's works at Germiston, Glasgow.

POLISH AIR STAMPS.

As showing Polish interest in aviation it may be mentioned that Poland has now distinctive stamps for air-post service, with a set of nine values from 1 to 45 groszes, inscribed "Poczta Polska Lotnicza." They are lithographed in traverse rectangular format with a vignette of an aeroplane in the clouds above Warsaw.

A MISFIRE.

[*The Poetry of Flight.* An Anthology. Edited by Stella Wolfe Murray. 144 pages. Heath Cranton Ltd. Price 7s. 6d. net.]

There is a story to the effect that a newspaper man wishing to impress a man-in-the-street told him that a certain voluminous publication, although it was sold for a penny, contained actually more than two-pennyworth of paper. Whereupon the man-in-the-street remarked : "Dear me, how printing does depreciate the value of paper."

Something of this attitude of mind will come upon anybody who takes up *The Poetry of Flight* and glances through a few pages without realising that the book-buyer is asked to pay 7s. 6d. for it. The paper is beautiful. The mechanical process of printing has been excellently done. The binding is good. Sir Samuel Hoare, Secretary of State for Air, ever kindly to those who mean well, has written a good-natured Foreword. But after that the book is merely painful to those who realise what the poetry of the air might be, and even to those who have read the good stuff which has actually appeared as aerial poetry.

There is, of course, some excuse for the dullness or the doggerel or the bathos of most of the verses which were written before flying actually happened. And there is even an excuse for including the genteel Tennyson's "Nation's airy navies grappling in the central blue." (Incidentally, "Nation's" is a misprint for "Nations' "), for in those days there was no Kipling, and the "Duchess of Malfi" was regarded as improper. But there is no excuse for including most of the verses which appear in the rest of the book.

The Editor's taste seems to run towards the "Up above the World so high, like a diamond in the sky" type of verse. She has dug out a lengthy poem by Mr. Alfred Noyes for which he must now be sorry, and with the assistance of Col. W. Lockwood Marsh she has discovered a poem by the late James Elroy Flecker which might conceivably have been worse.

But somewhere she has discovered J. O. P. E.'s great poem, *The Desert Mail,* which appeared by a curious coincidence simultaneously in The Aeroplane and *The Morning Post.* And a kindly fate has guided her towards Maurice Baring's poignant little verse on Lord Lucas, R.F.C. The rest are almost all of a kind which make one blush to think that some people may be led to think that they really represent the poetry of aviation.—C. G. G.

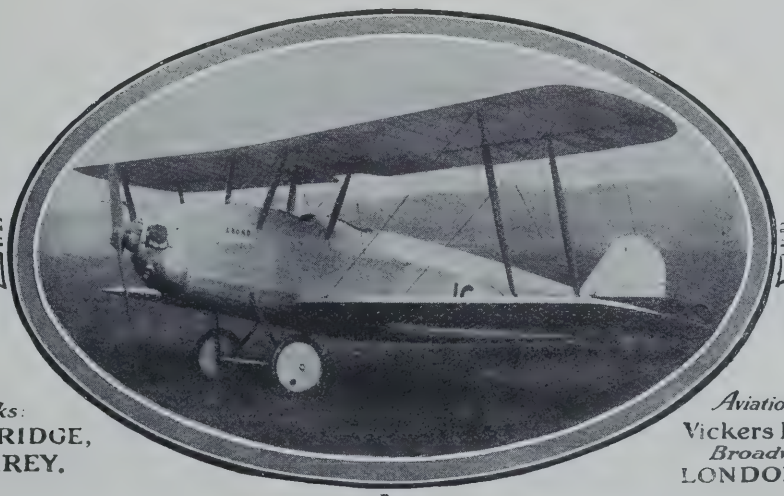
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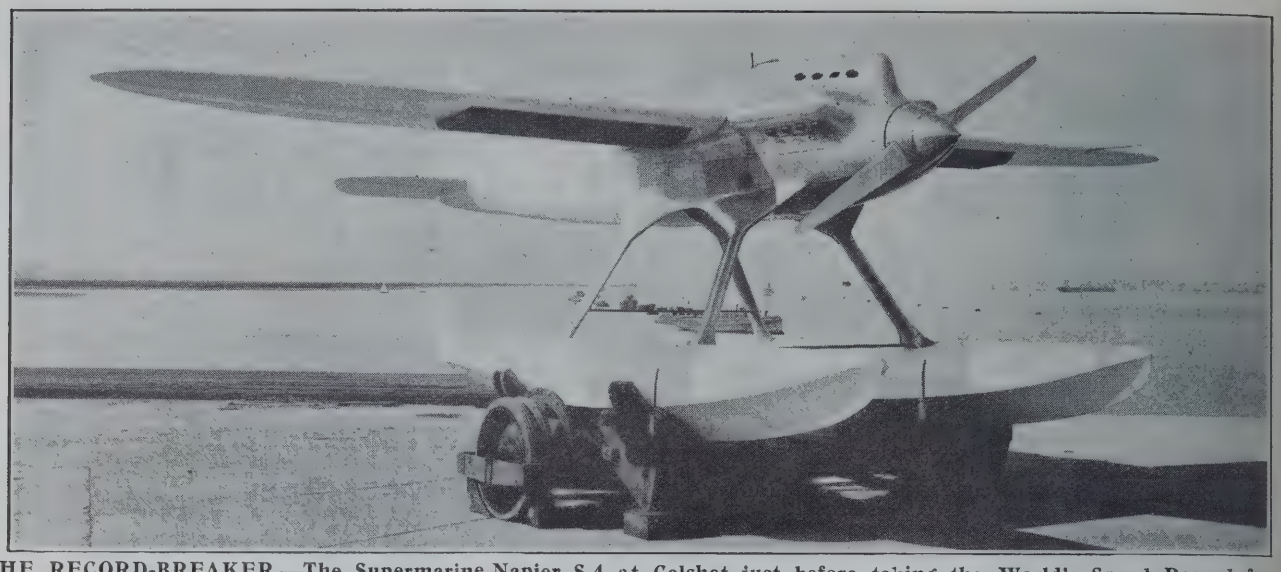


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THE WORLD'S SEAPLANE SPEED RECORD.



THE RECORD-BREAKER.—The Supermarine-Napier S.4 at Calshot just before taking the World's Speed Record for seaplanes. The photograph shows the cowling of the Napier engine and shows how the cowling of the outside blocks of cylinders merges into the wing. The Lamblin radiators also show well.

As reported briefly in The Aeroplane last week the Supermarine-Napier S.4, piloted by Mr. H. C. Biard, broke the World's speed record for seaplanes on Sept. 13 by flying four times, twice in each direction, over a three-kilometre straight course off Calshot at an average speed of 226.752 m.p.h. The maximum speed on one lap was 231.406 m.p.h.

This is the first occasion in history that Great Britain has held a World's speed record of the first order and so it is very satisfactory to find that this machine which was built specially for the Schneider Trophy Race has such a fine performance. May it be a happy omen.

All sorts of reports have appeared in the newspapers to the effect that the Schneider Trophy machines were flying at four miles a minute and that land machines in America could do 302 m.p.h., but so far no authentic figures for the actual sustained speed of the machines is obtainable. The Aeroplane was able to state last week that the actual sustained speed of the Curtiss racer with a land undercarriage was about 254 m.p.h. The speed of that machine with floats is probably about 230 m.p.h.

The record flight of the Supermarine-Napier was made quite early in its career, and before it was properly cleaned up and before Mr. Biard had had much practice on it. Also it is an open secret that a certain modification to the machine which will only be effected just before the Schneider Trophy Competition will increase its speed considerably.

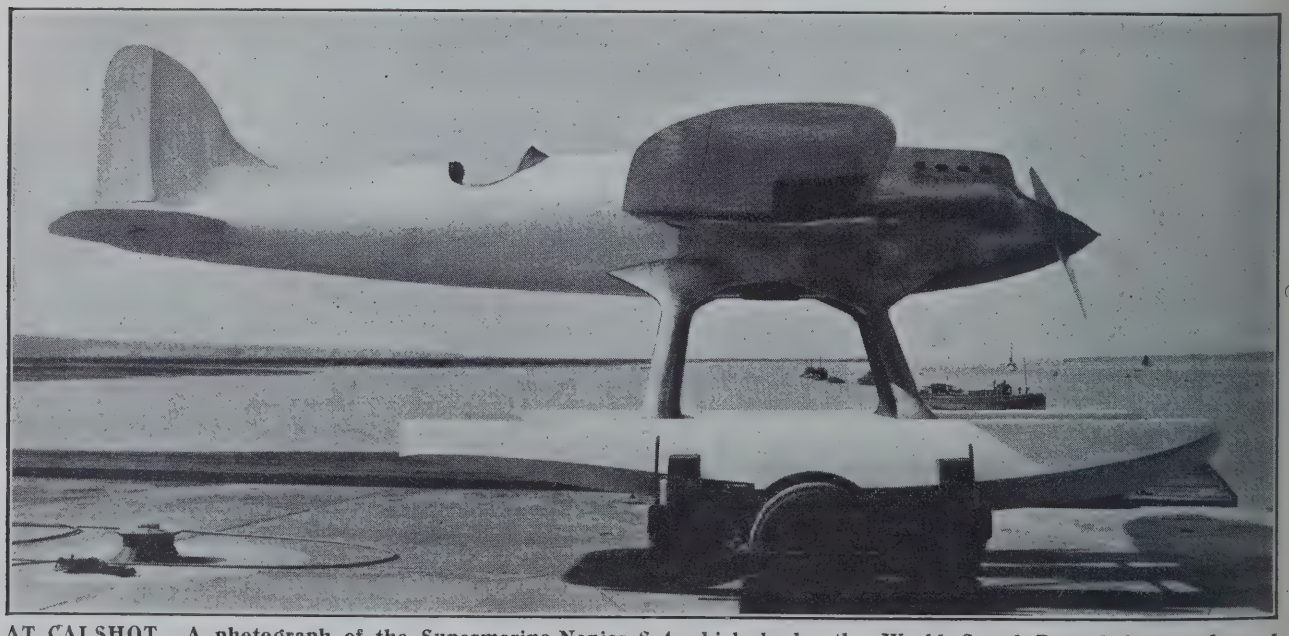
It would be improper until actual tests have been made to hazard any guess as to what the actual speed of the Supermarine-Napier will be in its final state when competing for the Trophy. But it is fairly certain that it will be faster than the fastest lap made in this speed record. And provided that Mr. Biard is able to take his turns all right and the slight injury to his wrist causes him no inconvenience then the chances of the Supermarine once again lifting the Schneider Trophy should be rosy.

Two new photographs of the racer are published on this page and in them the extremely clean lines of the machine can be seen.

The engine which was in the machine during the record performance is a Napier Lion with a direct drive which develops somewhere about 630 h.p. It was specially produced by the Napier Company for the Schneider Trophy Competition after the U.S. Navy won the Trophy in 1923. Since then the Napier Company has been working hard at it and there is no doubt that it is the lightest engine in the World for its power, and it is certainly unsurpassed for racing purposes.

After the Trophy left this country in 1923 many people said that the only way to get speed records was to make an engine with a small frontal area, as only such an engine could be put in to a machine and be properly cowled. An answer to this statement can be seen from the photographs of the Supermarine-Napier. And its performance in this speed record speaks for itself.

A Fairey Reed duralumin airscrew was fitted and Shell petrol was used to drive the engine. Also, as in practically



AT CALSHOT.—A photograph of the Supermarine-Napier S.4 which broke the World Speed Record for seaplanes by flying at an average speed of 226.7 m.p.h. It flew one leg of the course at 231 m.p.h.

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Some Successful Flights made with Rolls-Royce Engines:

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England to Warsaw	1,050 miles
England to Finland	1,100 miles
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England to Sweden (and back)	2,450 miles
England to South Africa	6,281 miles
England to Australia	11,500 miles

These flights were accomplished without any change of engines en route

"The Britannia Trophy, presented by the Royal Aero Club for the best performance in the year, has been awarded for the year 1924 to Wing-Commander Goble and Flight-Lieutenant McIntyre for their flight round Australia in a Rolls-Royce-Fairey."

"Daily Telegraph," March 26th, 1925

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all other records in aviation, Wakefield's Castrol oil was the lubricant.

The previous speed record of 188.118 m.p.h. was made by Lt. Cuddihy on a Curtiss C.R.2 Racer in 1923. Last year Lt. Rittenhouse, timed by himself between two points on the coast 3 kilometres apart, put up a speed of 226 m.p.h., but one gathers that this was only done in one direction and did not represent sustained speed.

The F.A.I. have recently reduced the number of World's records which may be obtained from 1,300 to 168. This is undoubtedly a step in the right direction, but one suggests that they can very well reduce this number to about ten as there are really only about that number of records which cut any ice whatever. And among the most important of these is the extreme speed record for land machines and seaplanes over a measured three-kilometre course which is the shortest distance over which speed records are timed.

Everybody will congratulate the Supermarine Co., and particularly Mr. Mitchell, the designer, and Mr. Biard, the pilot, on this very fine performance. It goes a long way towards proving that British seaplanes are the best in the World. And everybody will hope that the Supermarine-Napier combine will carry on their fine work by bringing the Schneider Trophy back to England with them.

As a postscript one would add that fine as is this speed record its value is all the greater because the firm's products have something more practical to recommend them. For evidence of the practical value of Supermarines one directs the attention of readers to the performance of five Supermarine-Napier flying-boats of the Southampton type which is described under the title "A Service Cruise" on the page which pertains to the Royal Air Force.

THE ITALIAN SCHNEIDER CANDIDATES.

The two Italian challengers for the Schneider Trophy left Genoa on Sept. 26 in the steamship *Conte Verde*. Both machines are of the Macchi 33 type illustrated in The Aeroplane recently, and have Curtiss D.12 engines. As stated at that time Signor de Briganti will fly one of the machines, and it is now made known that Signor Morselli will pilot the other.

A MATTER OF COMMITTEES.

In The Aeroplane of Sept. 23 on Page 370 referring to the Schneider Trophy Competition the Royal Aero Club was criticised for not entering three seaplanes for the competition and it was inferred that the Schneider Trophy Committee was to blame for this bad strategy.

As a matter of fact the Schneider Trophy Committee had nothing whatever to do with the entry of the machines as the Committee was only formed after the entries had been made and came into existence for the purpose of making the necessary arrangements for the sending out and equipment of the team which had already been entered by the Royal Aero Club as such.

The Schneider Trophy Committee included the representatives of the three firms concerned, namely the Gloucestershire Company, the Supermarine Company, and the Napier Company, and they came into the Committee because their firms were supporting the entries already made by the Club.

THE PULITZER MEETING.

The National Air Races of 1925 were held at Mitchel Field, Long Island, N.Y., on Oct. 8-10. So far little information has been published in the daily newspapers. A précis is given here, but at a later date a full description of the meeting will be published.

The opening of the meeting on Oct. 8 was marred by a fatal accident, when a Bellanca monoplane competing in the "Free-for-all" two-seater low-horse-power aeroplane contest, crashed, killing a passenger and seriously injuring the pilot.

This event was won by Mr. Basil Rowe flying a Thomas Morse two-seater biplane at a speed of 102.9 m.p.hr. over the 100-mile course.

The Liberty Engine Builders' Trophy Race for two-seat observation aircraft, held on Oct. 8, was won by Capt. Lemaître, on a Bréguêt XIX biplane (450 h.p. Renault engine) at a speed of 128 m.p.hr. Lieut. Pelletier Doisy, flying a Bréguêt XIX with a 450 h.p. Lorraine-Dietrich engine, was fourth.

By this win France scores a strong propagandist point. British constructors were earnestly invited to compete, but none accepted the invitation. The winner's speed showed that the race would have been a gift to some of our machines.

In the Aviation Town and Country Club of Detroit Trophy Race, held on Oct. 9, Mr. "Casey" Jones, flying a Curtiss Oriole, was the winner at 128.42 m.p.hr. The other events scheduled for that day were postponed owing to heavy rain.

On the Saturday, Oct. 10, all events were postponed until the following Monday, owing to a fall of snow, amounting to six inches in New York.

On Oct. 12, Lieut. Cyrus Bettis, U.S.A.S., won the Pulitzer Trophy Race over 200 kms. (124.27 miles), on a Curtiss R.3.C.1. (619 h.p. Curtiss V.1400 engine), at 248.99 m.p.hr. Lieut. Alford Williams, U.S.N., on a sister machine, was second and last at 241.71 m.p.hr.

The John L. Mitchell Trophy for U.S. Army Pursuit machines belonging to the 1st Pursuit Group was won by Lieut. Matthews at an average speed of 161.47 m.p.hr. Ten Curtiss P.W.8 single-seater pursuit biplanes participated in this competition. The winner's speed was thus 17 miles an hour slower than the best speed at Dayton last year, on the same type of machine.

Mr. Gerald Dack, of Dayton, Ohio, won the Scientific American Trophy for light aeroplanes at an average speed of 76.13 m.p.hr. over a 50-mile course.

THE FORD TROPHY TOUR.

The Commercial Airplane Reliability Tour which was held last week in the United States, was organised by the Ford interests to demonstate the possibilities of commercial aviation in the States. The principal prize was a challenge cup, know as the "Ford Trophy," donated by Edsel B. Ford, who is particularly interested in aviation.

As the name indicates this tour was not a race, but a reliability contest. The machines taking part had to comply with certain conditions in the way of factors of safety, and had to carry a paying load of ½ lb. per cubic inch of engine displacement, this load consisting of passengers or ballast, as desired by the competitor. Each pilot was supplied with a time schedule based on an average speed of 80 miles an hour, and which provided for the following legs of the course:—

(1) Sept. 28, Detroit—Fort Wayne; (2) Sept. 28, Fort Wayne—Chicago; (3) Sept. 29, Chicago—Omaha, via Iowa City; (4) Sept. 30, Omaha—St. Joseph; (5) Sept. 30, St. Joseph—Kansas City; (6) Oct. 1, Kansas City—St. Louis; (7) Oct. 2, St. Louis—Indianapolis; (8) Oct. 2, Indianapolis—Columbus; (9) Oct. 3, Columbus—Cleveland; (10) Oct. 3, Cleveland—Detroit.

To obtain a "perfect score" for a "leg" it was necessary to fly the leg in a time not exceeding 50 per cent. more than schedule time, providing at least 70 per cent. of the legs were flown in a time not to exceed 30 per cent. above the scheduled time and provided the entire course was completed. The name of manufacturer and pilot of each machine finishing within these requirements, is to be engraved on the trophy and the manufacturer who in the course of the yearly competitions gets his name on the trophy five times, becomes the permanent possessor of same.

The Fokker F.VII-3m monoplane with three Wright Whirlwind engines of 200 h.p. each, which in the beginning of September was demonstrated at Schiphol (Amsterdam, Holland) aerodrome and which was immediately afterwards shipped to the U.S., only arrived at New York on the 21st of that month, but it was ready in time to fly to Detroit via Buffalo on the 26th in order to start in the Ford Trophy on the 28th. On arrival at Detroit Henry Ford and his son Edsel examined the machine with great interest and had everything explained to them by Mr. Fokker.

From the start to the finish the three-engined Fokker carried two pilots, seven passengers and 500 lbs. ballast, the total useful load including 160 gallons (Engl.) of petrol, being about 3,000 lbs. It was flown at reduced throttle all the time, the engines doing no more than 1,400 r.p.m., whereas their maximum speed is 1,800 r.p.m. At this engine speed an average speed of 98 miles an hour was maintained.

There were about 20 entrants and the aeroplanes were started at one-minute intervals. Mr. Fokker with his three-engined machine was first at the Fort Wayne, Chicago, Omaha and Kansas City controls according to telegrams received, and finished first at Detroit, having gained a "perfect score" on each leg of the course, notwithstanding very unfavourable weather conditions. No less than three thunderstorms had to be fought, the machine actually finishing in one, while a delay of three hours occurred at one of the stops owing to fog. The whole 3,400 kms. of the tour were completed without any mechanical trouble and with great regularity. The result is considered a complete success for the Fokker three-engined monoplane in the States, and Mr. Fokker was given a tremendous ovation on his arrival at Detroit at the conclusion of the tour.

The latest news is that Mr. Fokker has flown back to New York with the machine, which completes a tour of over 3,000 miles entirely trouble-free.

OVER THE COUNTER.

British newspapers state that Mr. Henry Ford, following on his acquisition of the major interest in the Stout Metal Aeroplane Co. of Detroit, is placing Stout all-metal monoplanes on sale at the Wanamaker Stores in New York.

These machine, equipped with a 400 h.p. Liberty engine, will be sold at a retail price of $25,000 (£5,000). It is not quite clear whether this includes packing and postage charges.



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"Morning Post."



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THE ARRIVAL OF THE JAPANESE AVIATORS.

On Monday, Oct. 12, Major Abé and Mr. Kawachi, accompanied by Shinowara and Katagiri, their two engineers, arrived in England and were entertained at dinner at the Japanese Embassy.

As originally planned, they were to leave Le Bourgêt at mid-day and were due to arrive at Croydon somewhere round about 15.00 hours. To meet and welcome the Japanese aviators there were assembled at Croydon the Japanese Chargé d'Affaires, Mr. Yoshida, Major-Gen. Ninomiyea, the Marquis Komatsu and many members of the Japanese Colony in London.

Air Vice-Marshal Sir Geoffrey Salmond, representing the Air Council and the Royal Air Force, and Sir Sefton Brancker, Col. I. Edwards and Col. Shelmerdine, representing the Civil Branch of the Air Ministry, were also present.

Air Commodore C. R. Samson on a Siskin and a flight of Gloster Grebes had flown over from Kenley to assist in the welcome.

At mid-day it was announced that the Japanese had left Le Bourgêt at 11.53 hours and after lunch everybody assembled in a group in front of the control tower in readiness for the expected landing. A fog surrounded the aerodrome, the darkest and thickest portions being in the direction from which the Japanese were expected to arrive.

Later it was reported that a landing had been made at St. Inglevert at 13.45 hours, but in spite of this everyone confidently waited on the aerodrome.

The tedium of waiting was relieved by the departure of the flight of Grebes for Kenley. These machines taxied out on to the aerodrome in a tight bunch and at a signal took off in what one might call "dought-nut formation." Six Grebes formed a ring with one in the centre. The centre machine had a red top plane which might have represented the problematical spot of jam.

This machine rocked from side to side in a rather terrifying fashion in the take off. After circling once or twice during which they all dived past the crowd in salute they were quickly lost in the fog en route for Kenley.

Air Commodore Samson left soon after per Siskin and, in what seemed like a few minutes, re-appeared at the aerodrome per automobile.

In the gradually growing dusk the crowd were entertained by the arrival of various "air liners" and the placing in position of the flood lights and other precautions for a late landing of the visitors.

Shortly after 16.00 hours it was announced that the two Japanese Bréguêts had left St. Inglevert and interest revived. At 18.00 hours everyone prepared to leave as no news had been received as to the whereabouts of the Japanese and it was realised that a landing must have been made somewhere.

Later, it appears that at 18.30 hours news was received that both machines had landed at Farnborough at 18.00 hours and that Mr. Kawachi had nosed over in a small field near Cove and had damaged his airscrew and undercarriage.

After receiving refreshments in the R.A.F. Mess they were motored to London by Mr. Frank Courtney, who was at Farnborough testing the Cierva "Auto-Giro," and witnessed Mr. Kawachi's landing. So everything ended happily.

It appears that after leaving St. Inglevert Major Abé, on account of growing darkness and fog, decided to find the Thames and follow it to London, but on nearing Chatham, a prohibited area, he struck west and decided to fly to Croydon by compass. Thereafter he lost his way, which was quite understandable owing to the thick fog, and landed at Farnborough without knowing where he was.

There remains, however, the curious fact that the Japanese managed to miss Biggin Hill, Kenley, and Brooklands, all conspicuous aerodromes between Croydon and the Coast, and discovered our Royal Aircraft Establishment, where many of our most deadly aircraft secrets are housed, although it is thirty miles west of and beyond his proper objective.

Thus ended, rather unsatisfactorily for those who had waited for so long at Croydon, the first westward flight from Tokyo to London.—L. B.

THE LUNCH OF WELCOME.

The Japanese aviators were entertained to lunch at the Savoy on Oct. 13 by the Royal Aero Club and the S.B.A.C.

The Duke of Sutherland, Chairman of the Royal Aero Club, proposing the guests, related how the flight had been organised by the *Asahi*, which corresponds in position in Japan to our *Times*, and had been supported by public subscription.

The Duke said that the aviators had been publicly fêted at every city at which they had stayed, and had received decorations of a high order in Moscow. Major Abé was an officer of the Japanese Army (one is told that he learned to fly at an R.A.F. station in England), and Mr. Kawachi was a pilot employed by the *Asahi* on an air line run by that paper. Their mechanics had been trained on the Continent. He remarked that this was the first flight between Europe and Asia along the Northern Route through Russia.

Sir Phillip Sassoon said that the flight added fresh lustre to the history of Japanese aeronautics. He regarded it, speaking as a Western European, as a return visit for the flight of a distinguished French officer to Japan. We in England looked on Japanese progress without jealousy and with appreciation. He hoped that our guests would carry away a good impression of British aircraft.

Captain H. E. P. Dyke-Acland (Vice-Chairman of the S.B.A.C.), read a telegram from Mr. T. O. M. Sopwith, the Chairman of the Society, congratulating our guests on their flight. Capt. Acland said that he supported the pæans of praise poured on the guests by the previous speakers on the success of Japan's first great international flight. The organisation had been executed with wonderful precision. The pilots had a hard time, which was shared by the mechanics, but when they landed the mechanics had to take off their coats and work, which at any rate enabled them to keep themselves away from some of the entertainments. Speaking for British Aircraft Constructors he said that they were all pleased with the treatment which their envoys received in Japan. He hoped our guests would see the wonderful advances made by the R.A.F. in flying and in the maintenance of aeroplanes and engines, and that they would, in our factories, recognise the high quality of British design, construction and workmanship.

Major Abé, whose speech was made in French, translated to English by a fellow-native, remarked how much Japan owed to English science and kindness. He had no words to express his gratitude. He wished more progress to Aviation in England. [A statement with which all except our official experts will agree.]

Mr. Kawachi, whose words were similarly translated, said he was sorry not to reach Croydon yesterday. He was glad of the kindness he received after his accident.

Some fifty people were present at the lunch, which someone suggested ought to have been called "The Mongol Munch." Most of them were members of the British aircraft trade, and—as the American newspapers say—a pleasant time was had by all.

The flight is an extremely creditable one, entailing as it has done many thousands of miles over country devoid of any ground organisation other than that provided by Japan's new Allies, the Soviet Government of Russia.—C. G. G.

BUSY JAPAN.

[The following notes left Japan months before the departure of Major Abé and arrived only shortly before him.—Ed.]

On May 5-10, 1925, two F.5 flying boats (two 360 h.p. Rolls-Royce engines) belonging to the Yokosuka air station of the Imperial Japanese Navy, flew from Yokosuka to Otomari, Saghalien, and back, a total distance of 1,900 miles.

On May 12, two Supermarine Seal amphibians (450 h.p. Napier engines), belonging to the Kasumigaura air station, flew from Kasumigaura to Otomari and back, a total distance of 1,850 miles.

On May 12, Capt. Abé, of the Army Air Service, who is to attempt to fly to Europe later in the year, flew from Tachiarai air station to Morioka, a distance of 950 miles, in 8 hours 50 mins., non-stop.

On May 22, Mr. Kawachi, who is accompanying Capt. Abe on the European flight, also flew from Tachiarai to Morioka non-stop, in 8 hours. Both these flights were carried out for training purposes, the machines used being Bréguet 19 biplanes (400 h.p. Lorraine-Dietrich engines), which are to be used on the European flight.

On May 16-18 three Salmson biplanes (260 h.p. Salmson engines) of the Army Sixth Air Battalion, flew from Phyon-Yang, Korea, to Changchun, Manchuria, and back, a distance of 950 miles.

On May 24-June 3, Lieut. Kikuchi and Sub-Lieut. Maeda, of the Naval Air Service, flew from Yokosuka air station to Peking, and back, on two Mitsubishi biplanes (300 h.p. Mitsubishi-Hispano-Suiza engines). They left Yokosuka on May 24, and flying via Omura and Phyon-Yang, arrived at Peking on May 29. They left again on June 1, and arrived at Yokosuka on June 3.

It is reported that the Mitsubishi Internal Combustion Engine Co., Ltd., have secured the building rights for the Rohrbach all-metal flying boat. Dr. Rohrbach is now in Japan supervising the construction of the first machines.

The first of the new Mitsubishi fleet-spotter biplanes (450 h.p. Napier Lion engines) have passed their acceptance tests at Kasumigaura Air Station, and in the course of the tests flew from Kasumigaura to Asashigawa, Yezo, and back, non-stop, a distance of 600 miles.

THE LIGHT AEROPLANE CLUBS.

There are two sides to every question so there seems good ason for referring to the rumours of a certain amount of ssatisfaction in the London Aeroplane Club which were ade public in this paper last week. So far as the Comittee of the Royal Aero Club is concerned no member of the ondon Aeroplane Club has complained about the general anagement or about the members not being represented the Committee or about the lack of instructive lectures.

As to the general management, less than 50 per cent. of e members have been able to take instruction, even if ey want it, chiefly because so many of them have been ay.

As regards representation on the Committee, when mems were invited to join the London Aeroplane Club the mposition of the Club was distinctly stated. There was no ection of members to the Club and anybody can join the ub, which is limited in numbers, provided there are vacanes. And in a club to which there is no election it is fairly vious that the members cannot claim a hand in the manement, or seats on the Committee. So far as can be thered all the members who have gone in seriously for takg instruction in flying are quite satisfied with what has been ne.

On the subject of lectures it is well to remember that when e Club was first formed it was made clear that its activities uld be confined to the Aerodrome. On non-flying days essrs. Sparks and Witcombe have time in which to give a le technical instruction, which amounts to lectures on actical points about the machines and their handling, and ey do this for the benefit of those members who go to the rodrome and cannot fly on account of the weather. But ey cannot very well be expected when their flying is done become lecturers. Nor, one imagines, would many mems be sufficiently keen to go out to the Aerodrome to be tured after flying hours.

f any large number of members really want lectures they uld easily arrange among themselves for some competent rsons to deliver such lectures to them at some suitable ce in London. And if sufficient numbers cannot be found that purpose then one suggests that those who want to lectured should join the Royal Aeronautical Society and end its fortnightly meetings which are usually very badly ended and could do with larger audiences.

The London Aeroplane Club.

During the week ending Oct. 10 the following members re under instruction :—Mrs. Elliott-Lynn, Miss O'Brien, . Turner, Major Beaumont, Messrs. J. S. M. Michie, E. G. Harwood, N. J. Hulbert, G. W. Warwick, L. J. C. tchell, E. S. Brough, W. E. P. Johnson, C. Murrell, G. H. uig, T. H. O. Richardson, R. V. Banks, R. W. Ensor, P. Ogston, A. Southgate, A. P. Hunt, R. Malcolm, G. H. frey, E. K. Blyth.

Col. Turner, N. J. Hulbert, G. W. Warwick and P. G. Lucas re flying solos. On Thursday Col. Turner unfortunately naged an undercarriage in landing, which put one Moth of action for five days. This is the first time either chine has been laid up.

Messrs. Sparks and Witcombe instructed alternately on the machine after the accident.

The total flying for the week was 24 hours, in spite of two uk days.

The Newcastle-upon-Tyne Aero Club.

The following is the total amount of flying to date, . 11, 1925, not including the times spent in the air bringing chines from Stag Lane. From Sept. 28 to Oct. 7 the tructor was away collecting the second machine and during s period only a small amount of flying by Mr. Baxter Ellis k place.

Total number of hours flown—G-EBLX 23.50, G-EBLY 5.50.

The following is all dual flying.

During the week ending Oct. 11 (Sunday), Mr. P. Forsyth ppell, a former pilot, has been practising taking-off and ding, his total flying time being about 2½ hours.

Good progress has been made by Mr. R. M. Storbie, who l begin landing practice shortly. Total time 2 hours.

ss C. R. Leathart, 30 mins.; Miss F. J. Ellis, 35 mins. ss Ellis has also flown as passenger with Mr. Baxter is); Mr. R. N. Thompson, 1 hr. 30 mins.; Mr. G. G. Dunn, r. 30 mins.; Mr. H. H. Leech, 1 hr. 20 mins. Mr. N. S. ld (ex Pilot), 1 hr.; Mr. A. D. Bruce, 1 hr.; Mr. H. Ellis, r.; Mr. L. Smith, 4 5mins.; Mr. F. H. Phillips, 45 mins.; J. Bell, 45 mins.; Mr. W. H. Leete, 35 mins. (also flown passenger); Mr. A. E. George (ex Pilot), 30 mins.; Mr. R. Kennedy, 30 mins.; Mr. W. Palmer, 30 mins.; Mr. H. T. Middleton, 20 mins.; Mr. A. H. Bell, 30 mins.

The following have each had one 15 mins. flight :—Mr. T. Ellis, Mr. Johnson, Mr. G. Richardson, Mr. J. H. ith, Mr. G. H. Twine, Dr. Wingate.

The first flight of 15 minutes in each case was a trial flight and in all after that the pupil handled the controls while in the air, doing straight flying and turns.

Mr. W. H. Leete accompanied Mr. Baxter Ellis when he brought up the first machine. Mr. H. Ellis accompanied the Club's Instructor, Mr. G. F. E. Harrison, from Stag Lane when bringing up the second machine. They had a very bad time with fog.

Mr. Baxter Ellis has flown nearly every day since the first machines arrived and has taken up the following as passengers :—Miss F. J. Ellis, Councillor W. B. Ellis, J.P. (Vice-President of the Club, about 1½ hours), Mrs. Baxter Ellis (about 1½ hours), Major Brian M. Dodds (1 hour), Mr. Munro Sutherland (1 hour), Dr. Dagger, Mr. Brown, Mr. Cappel.

Mr. W. Baxter Ellis, Chairman of the Committee, is the only member of the Club who holds an " A " Licence.

The Lancashire Aero Club.

Five members of this Club have flown solos and three of these are now ready to take their " A " Certificates as soon as arrangements for an observer can be made with the Royal Aero Club. Flying is taking place every Saturday and Sunday all day and on certain afternoons each week.

The Midland Aero Club.

The Midland Aero Club, which was founded in 1909 for the encouragement and service of aviation, started on Oct. 6, 1925, practical flying. Mr. McDonough, who this year has been one of the pilots flying for Northern Air Lines Ltd., is chief pilot of the Club.

Major Vernon Brook, the Chairman of the Club's Council, presided at the opening ceremony which was held in the Club's big hangar. In the absence of Sir Sefton Brancker, the Air Ministry was represented by Lt.-Col. Shelmerdine, who formally presented the Club with two de Havilland Moths.

Mr. McDonough took up one of the Moths and, in company with two Siskins which had come over from Coventry, entertained the spectators with some splendid exhibition flying. The Club has now started serious instructional work and it is hoped next week to be able to give a complete record of the flying.

RECEIVERSHIPS.

Northern Air Lines Ltd.—W. D. Scott Scott, of Astor House, Aldwych, W.C., was appointed Receiver and Manager on Sept. 21, under powers contained in debentures dated July 13-Sept. 4, 1925.

GREAT YARMOUTH

(SIXTH)

RE-UNION DINNER

For Officers and Former Officers of the Great Yarmouth Air Station.

THE ABOVE DINNER WILL BE HELD AT

The Café Royal

(Regent Street Entrance)

— ON —

THE LAST SATURDAY IN OCTOBER

(Oct. 31st, 1925)

7.30 for 8. Dress Optional.

TICKETS 15/6 *(exclusive of Wines)*

may be obtained from G. F. H. BLOOM, 17, Welbeck Street, W.1.

Air Commodore C. R. SAMSON, C.M.G., D.S.O., A.F.C., will preside, supported by Cdr. E. T. R. Chambers, A.F.C., R.N., Wing Cdr. D. A. Oliver, D.S.O., O.B.E., Wing Cdr. A. B. Gaskell, D.S.C., Lt.-Col. Vincent Nicholl, D.S.O., D.S.C., and Major E. Cadbury, D.S.C., D.F.C.

OF AERONAUTICS IN AMERICA.—II.

Apart from the very strong plea for the introduction of an Air Law the Aircraft Year Book contains much interesting information concerning the progress of aviation in America during 1924.

The Air Mail.

The air mail naturally receives due attention. The record of the U.S. mail service during 1922, 1923 and 1924, shows that 5,783,000 miles were flown, approximately 4,000,000 lbs. of mail (160,000,000 letters) were carried, and only 125 lbs. of mail were lost. The reliability of the Air Mail as compared with normal surface transport is shown by the fact that no extra premiums are demanded for the insurance of valuables sent by Air Mail.

Prior to July 1, 1924, the Air Mail operations had been confined to day flying, except for experimental purposes, the mails being picked up by trains at the end of the aeroplane stage and travelling on the surface during the night. On July 1, the transcontinental service on a day and night flying basis, was put into regular operation, and the whole of the lost mail mentioned above appears to have resulted from one night-flying crash.

For the night-flying section of the route—which is over 1,900 miles in length—a very complete system of beacons, aerodromes, and emergency landing fields have been necessary. The cost of this equipment represented so large a proportion of the total vote allotted to the Post Office for Air Mail purposes that expenditure on new aircraft—except on a purely experimental scale—has been impossible. Operations therefore have been carried on mainly with the old D.H.4b—which, with night-flying equipment, have a mail capacity of about 250 lbs. with a 400 h.p. Liberty engine. Experimental machines produced specially for the purpose are carrying up to 1,000 lbs. of mail with the same engine—and with modern equipment, the trans-continental service, which joins New York to San Francisco in 34 hours, promises to become a really paying business.

It is said that the Post Office Department is constantly being approached by representatives of business and municipal interests for an extension of Air Mail facilities. The policy of the Post Office is that it should retain the responsibility for the laying down of air-route facilities—landing grounds, lighting, and so forth—but as far as possible should leave the actual operation to private interests under contracts with the Department. A Bill has been passed by Congress giving the Post Office powers to enter into such contracts, and there seems some considerable probability that the private operation of air-mail routes on a commercial basis may soon become an established fact.

Aerial Photography.

The application of aerial photography to commercial uses is said to be the largest organised phase of commercial aviation at the present moment. As it is estimated that for 1925 the revenue of aerial survey undertakings will amount to $1,000,000 (say £200,000), it will be realised that commercial aviation is not yet "big business" in the U.S.A. Nevertheless there is a rapidly-growing appreciation of the value of aerial surveying for many purposes, which will pretty certainly lead to steady progress in this direction. The United States of America have never been surveyed as a whole in detail, in the sense in which Britain has been covered by the Ordnance Survey. And for the development of new railways, long-distance electric power transmission lines, water-power exploitation schemes, and so forth, surveys in detail are of the first importance. There is thus in America a field for aerial survey work which scarcely exists in this country, and it is scarcely surprising that a good many of the more important American engineering interests have shown a readiness to experiment with this method of rapidly surveying large areas in great detail.

A Decline in Passenger and Freight Transport.

Passenger and freight-carrying enterprises are reported to have declined during 1924. According to the statistics given, only 60 concerns with 217 aircraft operating from a fixed base were active in 1924, as against 124 concerns with 429 aircraft in 1923. Miles flown by these operators were 922,000 as against 3,014,000 for 1923, and passengers declined from 80,888 in 1923, to 48,904 in 1924. Freight (including mails) declined only from 208,000 lbs. to 159,000 lbs. 88,500 lbs. of this latter total was mails—which are carried by private firms between Seattle and Vancouver and between New Orleans and Pilottown.

The decline is mainly in the passenger-carrying department—and is attributed to waning curiosity on the part of the public and, consequently, lack of paying business, leading to dissolution of concerns which could not afford to replace their worn-out equipment.

Aircraft in Agriculture.

An interesting phase of civil aviation is that of dusting or spraying growing crops from the air as a check to the ravages of insect pests. In particular, the boll weevil, which infests cotton crops over an area given as 400,000,000 acres, has been attacked by dusting with calcium arsenate from the air. Dusting from the ground is slow and expensive, whereas with a suitable aeroplane large areas can be covered rapidly at a low cost. It is said that by surface methods of dusting one negro and one mule-drawn dusting machine cover 30 acres per day. One aeroplane can cover 200 to 1,000 acres per hour, depending on local conditions, and effects a saving of 50 to 60 per cent. of the insecticide. It is estimated that the boll weevil costs cotton growers some $200,000,000 per annum, and the possibilities of dusting from the air have already led to the formation by the Huff Daland Co., of a subsidiary concern, known as Huff Daland Dusters Inc., to carry out dusting operations. Sixteen Huff Daland aeroplanes, fitted with dusting gear, have been put into service, and it is expected that very much greater demands for aircraft for this purpose will develop in the near future.

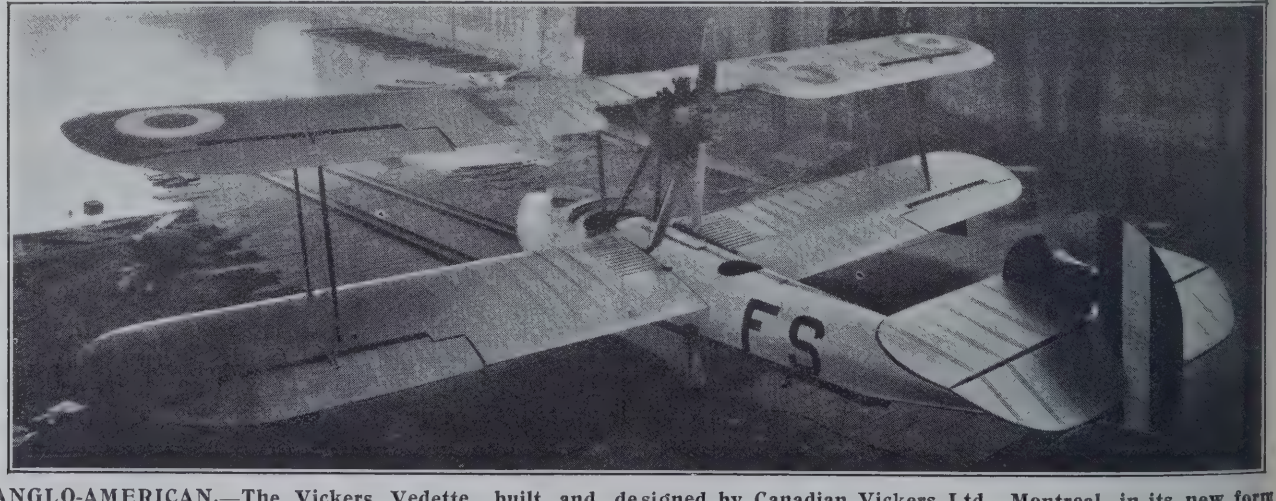
The cotton crop is not the only field for activity of this type. Peach and other fruit orchards may be treated in the same way.

Surveys of growing crops for estimating purposes, have also been made with successful results, and this business can be worked in conjunction with the work of protecting them from insect pests.

Forest patrol operations in the Western States are being undertaken by Government Departments, the actual air work being carried out by the Army Air Service. Only $50,000 is available for 1925, so that these operations are on a small scale. It is hoped that in the future this class of work will be taken up by private firms.

Round the World.

A very complete account of the Army Air Service Round the World Trip is given, which includes interesting and very



ANGLO-AMERICAN.—The Vickers Vedette, built and designed by Canadian Vickers Ltd., Montreal, in its new form with the 200 h.p. Wright Whirlwind radial engine of 200 h.p.

BRITISH ADC AIRCRAFT LTD AIRCRAFT

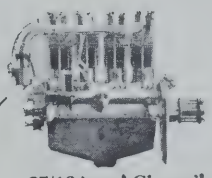
Contractors to the AIR MINISTRY and most FOREIGN GOVERNMENTS.
Designers and Constructors of "MARTINSYDE" Types of Aircraft.
Designers and Constructors of 27/60 h.p. "CIRRUS" Aero Engines.
120/140 h.p. "AIRDISCO" Aero Engines.


Rolls-Royce "Eagle 8."

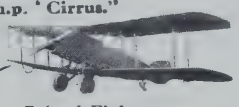
Martinsyde F4

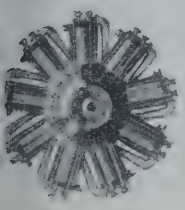

D.H 9a.

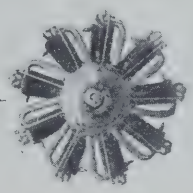

300 h.p Hispano Suiza.


27/60 h.p. "Cirrus."


Avro Type 504K.

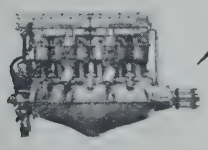

Bristol Fighter.


200 h.p. . .R.2

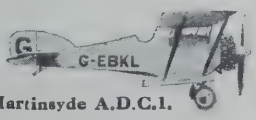

110 h.p. Le Rhone


D.H 9.


Sopwith Snipe.


240 h.p. Siddeley "Puma."


210 h.p. "Viper."



Martinsyde A.D.C.1.


120/140 h.p. "Airdisco."


D.H.9. Seaplane.

A.D.C. AIRCRAFT LIMITED,

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complete data as to the amount of repairs and replacements actually made in the course of the flight. This gives a very clear idea as to the importance of the very complete organisation laid out in advance to the ultimate success of the flight. As an instance, twenty different engines were used for a total of approximately 116,000 machine miles—an average of 5,800 miles per engine. This large use of spare units in no way reflects on the reliability of the engines, but it indicates the care which was taken to render the expedition as nearly independent of engine reliability as was possible.

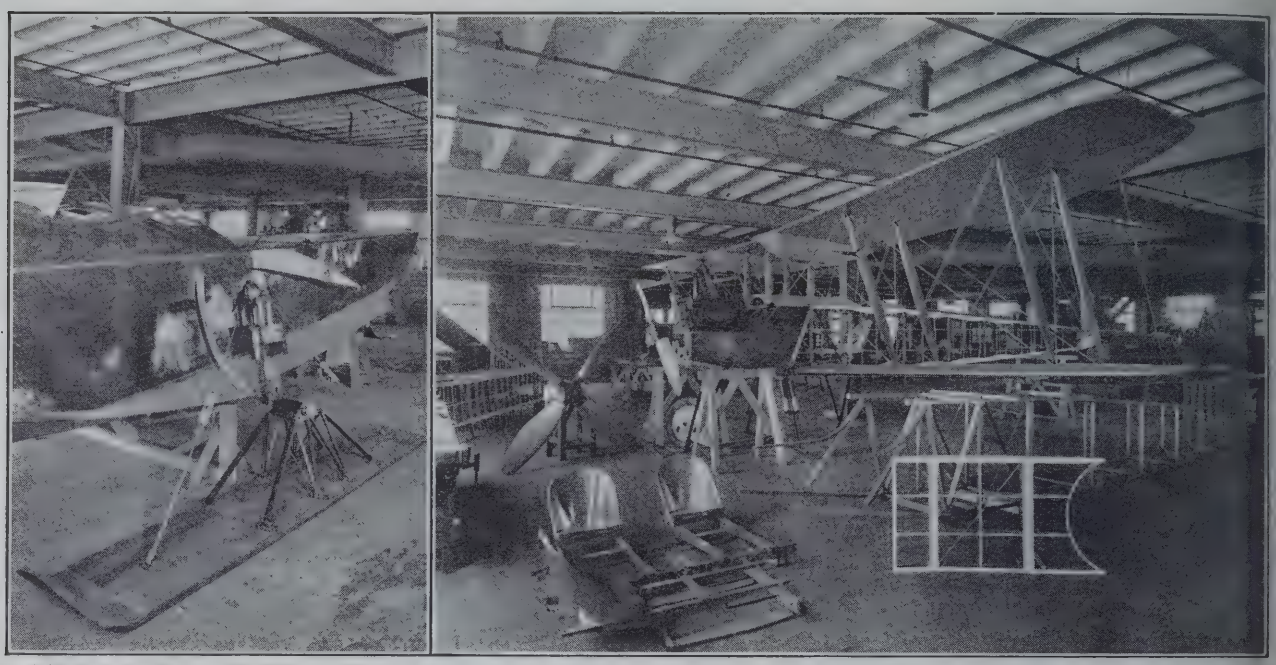
Airship activities—which are practically entirely a Service undertaking—are reviewed, due prominence being given to the Trans-Atlantic flight of the Z.R.III or Los Angeles.

A review of aeronautical activities throughout the world is given, each nation being treated separately. This review is in the main very accurate, but is necessarily sketchy. There is in addition a chronological table of aeronautical events of note throughout the world, followed by an ample stat ment of those exclusively American.

A final chapter deals with Technical Progress during 192 This section is entirely American and gives some interesti data, illustrated by scale drawings of a number of rece American aircraft and engines. Appendices give in det the constitution of the Aeronautical Chamber of Commerc the Aircraft Manufacturers' Association and the Nation Aeronautic Association, the organisation and distribution the Army and Navy Air Services, full particulars of the A Mail Service, the constitution and work of the Nation Advisory Committee for Aeronautics, tables of aircraft i ports and exports from 1916 to 1924, a complete list of bo World and American Records as at Jan. 1, 1925, and fu details of the results of the races at the Dayton Air Meeti of October, 1924.

Altogether the book contains an amazing amount of i formation in a very compact and attractive form.

CANADIAN VICKERS LTD.



IN THE CANADIAN VICKERS WORKS.—Left, skis for a Vickers Viking; right, a 504K Avro (Viper) built for fire patrol.

During the course of a recent visit to Canada, one took the opportunity of calling on the Canadian Vickers Works at Montreal. At first it was feared that one's intention to do so was going to be quashed as the date of arrival of one's ship happened to be Aug. 3—Great Britain's August Bank Holiday. But one day was to be spent in Montreal and visions were conjured up of the entire Vickers staff bank-holidaying in Laurentide Park or shooting the Lachine Rapids. However, inquiries elicited the fact that Bank Holiday in Canada is Labour Day, and, contrary to the usual European practice, Labour Day is an occasion when people labour, as on any other working day, Saturdays included. From Montreal a taxi was taken to the Canadian Vickers plant at Maisonneuve involving a ride down the riverside for a distance of five miles or so past some of the largest grain elevators in the world. The Vickers Works cover a huge area consisting, in addition to the machine shops, administrative offices, etc., of two covered slipways capable of building the largest type of ship that can navigate the St. Lawrence River up to Montreal, that is, anything up to 15,000 tons. These slipways are completely covered in and thoroughly heated and although the shipbuilding industry in Canada is now practically non-existent, these slipways are in use for purposes in connection with ship-repairing and other branches of engineering. Unfortunately at the time of one's visit the Canadian Vickers Vedette flying-boat was away on test by the Canadian Royal Air Force and an order for a number of Avro seaplanes had just been completed so that there was little actual aircraft construction going on.

However, in spite of this apparent inactivity the large and well-equipped drawing office appeared to be going full out on some new designs and in the aircraft works the hull of the Vickers Verona, a new twin-engined flying-boat very much on the lines of the Vedette, was under construction.

Although it is only since 1923 that the Canadian Vickers Co. have taken up aircraft construction they have accomplished a considerable amount of useful work in this direction. The aircraft works under Mr. W. T. Reid, late of the Bristol Co., are now fully equipped with the late plant and possess sufficient floor space to cope with the de mand of the Canadian Air Force. Their entry dates from th time when eight Vickers Viking amphibians were ordered b the R.C.A.F. to replace the war time equipment then in us Two of these machines were built in England and the re mainder were built throughout by the Canadian Vickers Co During 1924 the works were kept busy throughout the yea and an extremely satisfactory output of aircraft, spares an aeronautical supplies was maintained.

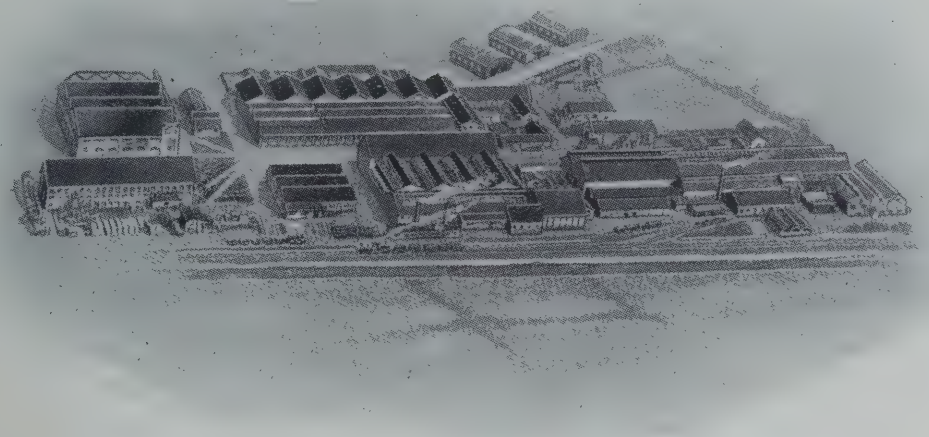
The principal contracts were for the Department o National Defence and included the building of two Vikings the construction of five single-seater Avro Viper fire patro machines, the reconditioning of five Avro dual control 504K and the manufacture of a large quantity of spare parts. Th first Canadian designed and built three-seater single-engine flying-boat was completed in October and this machine ha given extremely satisfactory results on test. In addition con tracts were executed for a number of private companies fo the construction of seaplane floats, skis, and other part and fittings as well as the overhaul and erection of aircraft During 1925 the works have constructed 10 Avro two-seate seaplanes for fire protection purposes. They are fitted wit the 200 h.p. Wright Whirlwind air-cooled radial engine an central pontoon floats, thus making one more version— Americanised this time—of the ubiquitous Avro 504. Th Vedette has also been fitted with the Wright Whirlwin engine in place of the 200 h.p. Viper engine, and thus fitte is the first air-cooled pusher flying-boat in the world. A description of the Vedette in its original condition ha already appeared in The Aeroplane. It is a three-seate pusher boat seaplane of more or less normal design. Th hull has a semi-circular top with a vee bottom and two steps The keel and chines are of ash with elm framing, the whol being covered with cedar strips and finally covered with tw layers of fabric painted and varnished.

The wings are built up of spars and ribs of Canadian spruc and with the exception of the centre section struts only on

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View of the Westland Works photographed from a Westland Aeroplane.

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The Westland Aircraft Works have been privileged to design and construct machines of all types for the British Government, and the same skill in design and manufacture has been applied to their commercial Aircraft.

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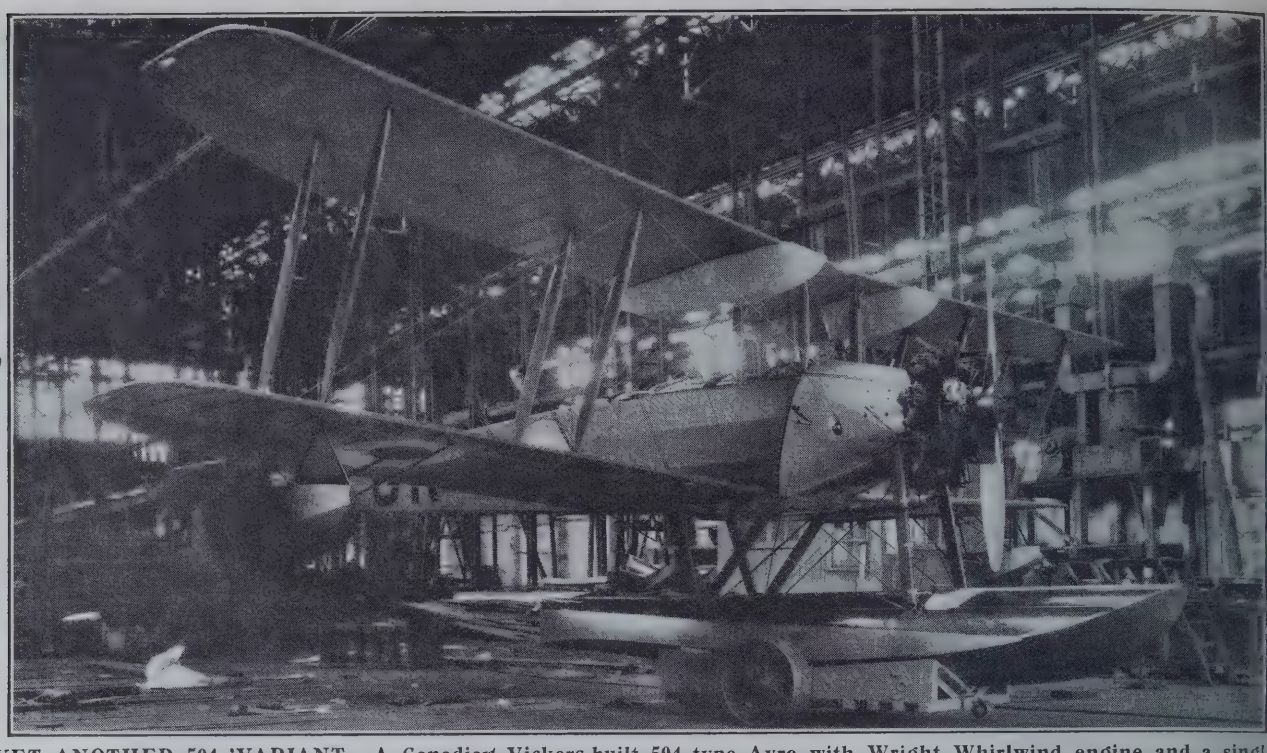
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YET ANOTHER 504 'VARIANT.—A Canadian Vickers-built 504 type Avro with Wright Whirlwind engine and a sing central float—also for fire patrol.

set of struts are fitted either side of the hull. The engine plate is mounted on an erection of steel tubes of rather peculiar arrangement. The two front centre section struts run vertically between the hull and the front spar of the top centre section. Two backwardly-inclined struts are attached at the bases of the front vertical struts and run to the two bottom points of attachment of the engine bearer plate. The top of the engine bearer plate is bolted direct to the back spar of the centre section. The two back centre section and engine bearer struts run from hull to the bottom attachment of the engine bearer plate in the form of a cross. Two smaller gauge tubes run from the front spar of the top plane to the bottom of the engine bearer plate and two other smaller bracing tubes continue the line of the back cross struts from the bottom of the engine bearer plate to the top back spar. The only bracing wires in the engine mounting consist of lateral cross bracing between the two front vertical struts and vertical bracing between the bottom of the engine bearer plate and the bottom ends of the back cross struts.

An auxiliary fuel tank and an oil tank are mounted in front of the engine and are enclosed in a neat streamline cowling. The main petrol tank is fitted in the hull, the petrol being raised to the service tank by a mechanical engine driven pump. Wing tip floats are made of spruce framing and are covered with a material called celleron screwed on and the various points cemented. The resultant float is very much lighter than the normal wood float and equally as strong. This same material is used for the bulkheads in the hull. The tail unit, consisting of fin and balanced rudder, tail and elevator, are of fabric covered metal construction.

The specification of the Vedette with the Wright Whirlwind engine is as follows :—

Span	42 ft. 0 in.
Length	22 ft. 10 in.
Height	11 ft. 9 in.
Chord	6 ft. 9 in.
Gap	6 ft. 6 in.
Area of main planes	490 sq. ft.
Loading per sq. ft.	6.55 lbs.
Loading per h.p. (220 at 2,100)	14.10 lbs.
Weight empty	2,063 lbs.
Weight loaded	3,203 lbs.
Full speed at sea level	98 m.p.h.
Speed at 5,000 ft.	95 m.p.h.
Speed at 10,000 ft.	87 m.p.h.
Climb to 1,000	1.6 mins.
Climb to 5,000	9.5 mins.
Climb to 10,000	27.5 mins.
Ceiling	13,800 ft.
Duration at 75 m.p.h.	6 hours
Landing speed	48 m.p.h.
Time to get off	15 secs.

The Verona now under construction is an enlarged version of the Vedette fitted with two Wright Whirlwind engines driving tractor airscrews. It is being designed for fire fig ing purposes and in addition to the normal equipment such machines it will carry a motor-driven water pump. T hull, which was under construction when one saw it, practically the same in shape, materials and methods construction as the hull used on the Vedette. At the mom rt is not possible to describe this machine, but it is hop that when the Verona is completed a full description w photographs will be published. The workmanship on small portion of the Verona, as on the few other specime of Canadian Vickers aircraft work seen, were of the high order and quite up to English standards, which is sayi the best one can. One was very courteously received by W. H. German, the Works Manager, and Mr. W. T. Re the Chief Aircraft Designer, but unfortunately it was imp sible to spend all the time one would have liked looki round the entire works. Nevertheless, a hurried tour un the leadership of Mr. Reid impressed one with the facilit of the Canadian Vickers Co. in every phase of engineeri and more particularly with the rapid growth and efficiency their aircraft department.—L. B.

BRISTOL ENGINES IN GERMANY.

An Albatros L.69 monoplane, fitted with a 100 h.p. Bris Lucifer engine and piloted by Herr Student, has won fi prize in the Air Race round Saxony. The Bristol Compa have been informed by the Albatros Company that the eng required absolutely no attention of any kind throughout whole of the competition.

Similar praise has been received by the Bristol Co. fr Herr Messerschmitt, whose machine, the Messerschmitt M. fitted with a Bristol Cherub engine, and piloted by Herr K Croneis, recently won both the speed and altitude prizes the Munich Meeting on Sept. 12 and 14.

In reporting the results, Herr Messerschmitt wrote t " the Cherub engine ran like clockwork from beginning end of the competitions."

A NEW FOKKER F.VII.

During the first week of October, the N.V. Nederlands Vliegtuigenfabriek " Fokker " delivered to the K.L.M. first of a series of improved type Fokker F.VII monoplan

This machine, which is a further development of the F.V which accomplished the Amsterdam-Batavia flight, is ide cal with the one demonstrated at Schiphol, at the end of Ju except for the fact that the new machine is fitted with 400 h.p. Gnôme-Rhône Jupiter engine in place of the 400 h Liberty.

The Jupiter F.VII has a top speed of 175 km.p.h. (m.p.h.), a commercial speed of 155 km.p.h. (96 m.p.h.) climb to 1,000 m. in 8½ mins., and to 2,000 m. in 21 min

The first machine delivered is being placed on the Amst dam-Rotterdam-Paris service immedately.

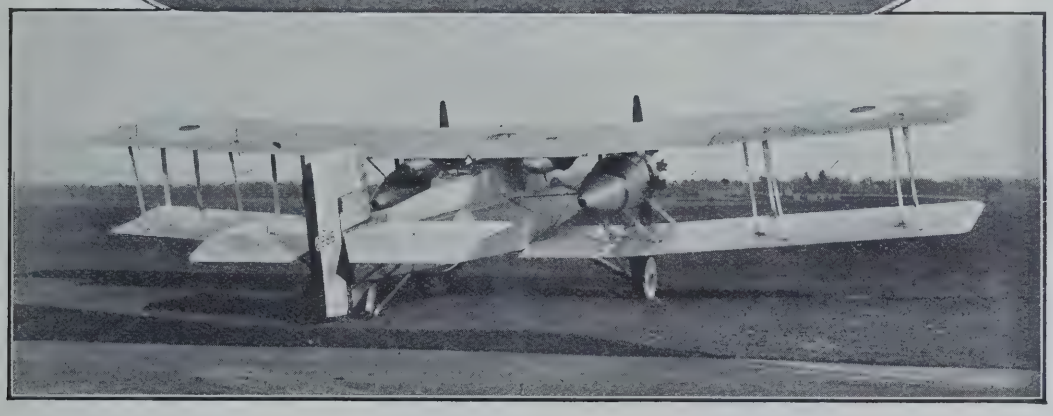


THE Bugle Mark I. High Performance Twin-Engined Day Bomber. Entirely of Metal Construction.

Looping photographs by courtesy of "Flight."







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Contractors to the Air Ministry, etc.

ANGLO-FRANCO-DUTCH.—A Fokker F.VII with Bristol Jupiter built by the Cie Gnôme-Le Rhône under license from the Bristol Company.



COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 14; Tuesday, 16; Wednesday, 11; Thursday, 17; Friday, 16; Saturday, 20; Sunday, 1.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 49, passengers 209, freight 14 tons.

AIR UNION:
Paris—London: Machines 31, passengers 119, freight 9 tons.

K.L.M.:
Amsterdam—Rotterdam—London: Machines 12, passengers 38, freight 2½ tons.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES:

LUFT TRANSPORT JUNKERS:
Berlin—London—Manchester: Machine 1, passengers 3.

CZECHO-SLOVAK ARMY:
Prague—London: Machine 1, passenger 0.
London—Brussels: Machine 1, passenger 0.

Total number of trips by British machines: 49, carrying 209 passengers. Foreign machines: 46, carrying 160 passengers.

Comparative Figures:

For week ending Oct. 11:
Machines, 95; Passengers, 369; Crews, 121; Total personnel, 490.

Corresponding week, 1924:
Machines, 111; Passengers, 466; Crews, 137; Total personnel, 603.

Corresponding week, 1923:
Machines, 60; Passengers, 132; Crews, 89; Total personnel, 221.

Corresponding week, 1922:
Machines, 101; Passengers, 305; Crews, 163; Total personnel, 468.

Corresponding week, 1921:
Machines, 80; Passengers, 214; Crews, 109; Total personnel, 323.

Corresponding week, 1920:
Machines, 125; Passengers, 196; Crews, 143; Total personnel, 339.

Croydon Notes.

The Handley Page Hampstead is expected to arrive at Croydon shortly. One understands that the exhaust-pipe troubles with the Jaguar engine have been overcome, for the time at any rate, and the machine has been flying well. Mr. Hinchliffe takes it off the ground with a full load in something under ten seconds, and one learns that it flies easily with full load on two engines.

The Vickers Vanguard (two Rolls-Royce Condors) was taken over by Imperial Airways, Ltd., on Saturday, and the Avro Andover will return to the fold next Thursday.

Lt. Jira, of the Czecho-Slovakian army, arrived from Prague on an Avia monoplane on Thursday, and left again on Saturday.

A Junkers machine from Germany passed through Croydon during the week and went on to Manchester. It had been chartered by a party of German business men who wanted to go to Manchester and who found that while it took only 11 hours for the journey by air, it took 33 for the journey by ground. The trip was arranged by the Air Express Co. Ltd.

Imperial Airways Ltd. have tested the Savage-Bramson anti-stall gear. Major Brackley, Mr. Olley, and Mr. Armstro all flew the S.E.5a so fitted, and all of them agreed that gear would be a great asset to commercial machines.

One of the new W.10s (the twin Napier machines) is be fitted with a gear in order to test it under service conditio and if it is found to be satisfactory it will be adopted on machines.

On Monday afternoon, in spite of the fog which deflec the Japanese aviators to our Royal Hush-Hush Establishm at Farnborough, Lady Maud Hoare, Sir Samuel Hoare a Sir Sefton Brancker arrived from the Brussels Congress i D.H.34, piloted by Lt.-Col. Minchin of Imperial Airways L These air journeys by the Secretary of State go far to cre confidence in air travel.

If one stands in the notice board enclosure and one loo out onto the aerodrome one notices two little blue wood crosses near the public enclosure. One is told that there a touching little story attached to these. In the bad old da of last Summer, now happily gone, when Imperial Airwa used daily to harden its collective heart and sin yet mo two would-be passengers arrived and astounded everyo by saying that they wanted to fly to Paris. Now in those days, since passed, nobody was so silly as to want to fly Paris as there were no aeroplanes on which to fly there.

But these two passengers were faithful passengers, a patriotic withal. And they said they *would* fly to Paris a in a British machine. And they would not be confounded

And so they waited for the departure of the midday express. And they waited and waited. And gradually th grew thinner and wanner and after many and faithful wea weeks of waiting and watching they passed peacefully hopefully away.

Then the time came when the devils were cast out of t collective soul of Imperial Airways Ltd. And they took co passion on the two good and faithful servants. And they d two little graves in the ground near the petrol pump.

To the memory of these faithful and trusting passenge who gave their lives in the interests of punctuality, Imper Airways erected these two little crosses. And to show th complete repentance they even caused these monuments to painted with the blue of Imperial Airways Ltd.

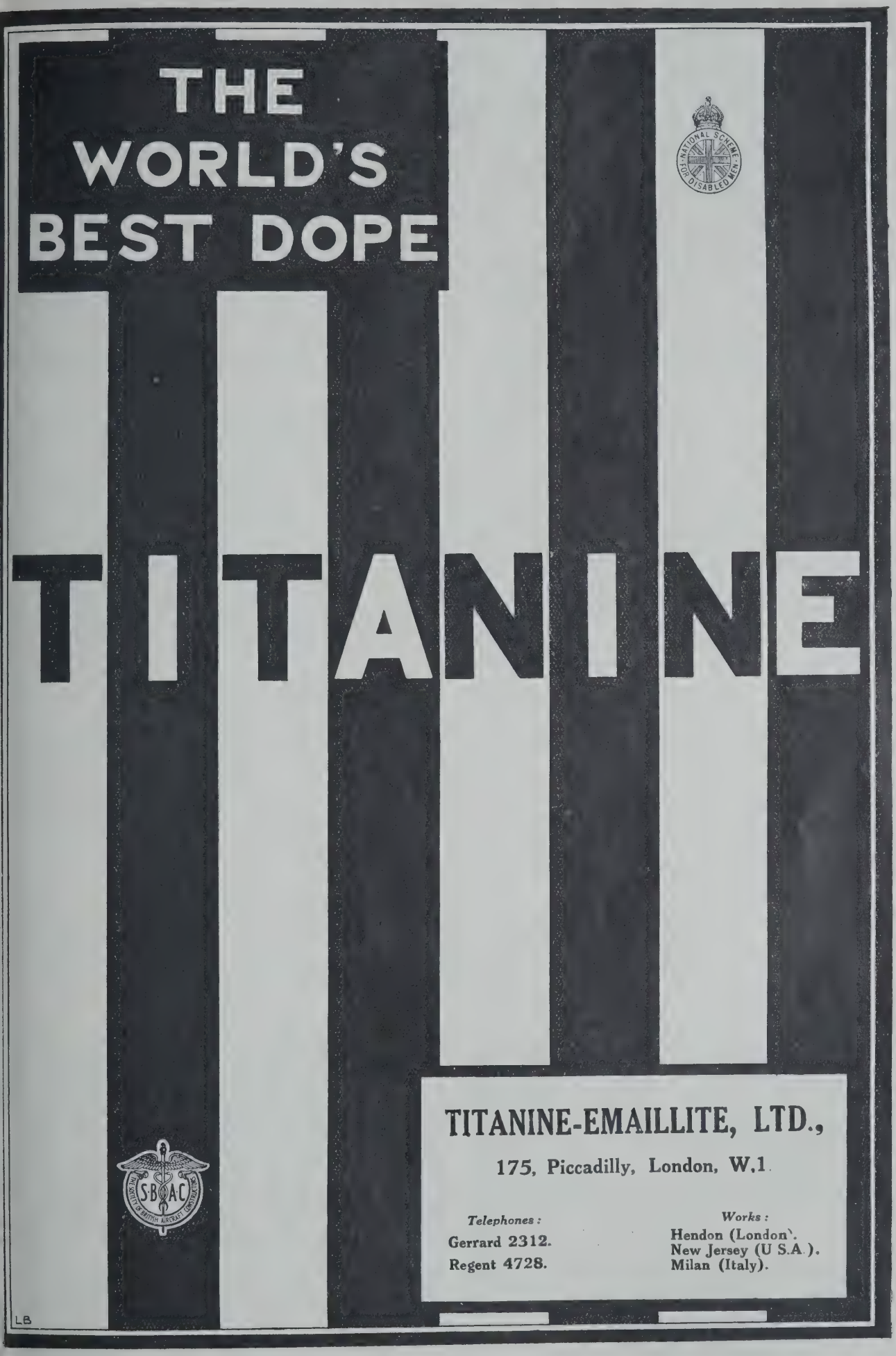
Wherefore now whenever the pilots and officials see th two little crosses set up to the memory of the two faith passengers they remember. And that is how all the air presses of Imperial Airways Ltd. start exactly at the pointed hour.

Therefore you who read this sad little story when you late for an appointment, be it lunch, train, theatre, shin or what-not, remember the sad if untrue tale of the T Faithful Passengers.—G. D.

Air Mails.

The Postmaster-General announces that Air Mail Route No. 6 (page 2 of the current Air Mail leaflet) has ceased to be available, the Air Mails to Hamburg and Copenhagen (serving Denmark, Norw Sweden and Finland) hitherto closed in London at 6.0 p.m. have b discontinued.

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The Kantara-Karachi Air Service.

Col. Burchall and Lt.-Col. Minchin have returned to this country after surveying the Kantara-Karachi air route. They have placed their report in the hands of the authorities of Imperial Airways Ltd. who are expected to make an early statement.

It is understood that the difficulties in the way of operating such a route are very great and it is considered that it will not be feasible without three-engined machines of proved reliability.

More Circulated Inaccuracies.

The following paragraph appeared in *The Daily Chronicle* on Oct. 6 :—

A Rolls-Royce Vanguard, the largest air liner in the world, and the first air restaurant-car, was delivered at Croydon Aerodrome yesterday after passing the Air Ministry's tests at Martlesham.

The Vanguard was built by Vickers Ltd. and not by Rolls-Royce, who supplied the engines. As this paragraph, or one something like it, appeared in several papers the assumption is that it was circulated by an agency. Only the week before last one drew attention to a circulated paragraph implying that the Napier Company built the Vickers Vulcan.

It is high time that the editors of newspapers looked into the question of these misleading paragraphs.

One expects an institution such as the British Broadcasting Company Ltd. to broadcast inaccurate aviation news and almost every evening one enjoys a good laugh at the aviation portion of their news bulletins. But they know no better. It is, though, quite time that those responsible for the manufacturing and editing of aviation news in the daily press learnt the rudiments of matters aeronautical and refrained from falling into the mistake of crediting the wrong firms with the building of certain machines.

This circulator of ill-informed news is evidently still hard at work, for the following appeared in *The Manchester Guardian* on Oct. 10 :—

Colonel H. Burchell and Lieutenant-Colonel W. F. Minchin, the Imperial Airway's survey party, who have flown in big Napier Vernons over the whole of the 2,400 miles Empire air route between Egypt and India, returned to Croydon yesterday. A consultation is now to take place between Imperial Airways and Air Ministry officials, who will discuss the survey party's report with a view to the early opening of a regular weekly aeroplane service between Egypt and India.

He seems to make a dead set at the Vickers Company for here is a third Vickers machine attributed to the Napier Company. People should be told that the Vernon is built by Vickers Ltd and engined with Napier Lions.

Also the statement that Colonel Burchell and Lt.-Col. Minchin flew over the entire route between Eypt and India in Vernons is a false statement. They used Vernons only on part of the route. The remainder was done on D.H.9as and Bristol Fighters.

PERSONAL NOTICES.

DEATHS.

LYON-WILLIAMS.—On Oct. 10, at The Rosary, Keswick Road, Boscombe, Capt. Benjamin Stuart Lyon-Williams, late Wiltshire Regt. and R.A.F.

SMITH.—On Oct. 8, at 54a, Redcliffe Square, S.W.10, of heart disease contracted in the Service, Maj. Ronald Sinclair Smith, late R.N.A.S. and R.A.F.

FORTHCOMING MARRIAGE.

TURNER—FAIR.—The marriage arranged between Mr. Michael H. Turner, late Capt., R.A.F., son of the late Sir George Turner, M.B., and Lady Turner, and Daisy Mainwaring Fair, only daughter of Canon Lockett Ford, of St. Patrick's Cathedral, Dublin, will take place on Nov. 4, in Hong Kong.

MARRIAGES.

FREEMAN—WATSON.—On Oct. 3, at St. Mary the Virgin and Saints', Potters Bar, Charles Teverill Freeman, D.S.C., A.F.C. (late M R.A.F.), only son of Mr. and Mrs. P. B. Freeman, of Southgate Margaret Leonora, second daughter of Mr. and Mrs. J. J. E. Wat of Potters Bar.

LAING—UPSON.—On Sept, 26, at The Church in the Wood, Holli ton, Sussex, Flg. Off. Alexander Thomas Laing, R.A.F., to Eil Mary, youngest daughter of Mr. and Mrs. F. W. Upson, of Holling Park, St. Leonards-on-Sea.

LEE—HAMILTON-BROWNE.—On Oct. 1, at Penton-Mews Andover, Flg. Off. Owen Vincent Lee, R.A.F., to Xina, elder daugh of Major and Mrs. Hamilton-Browne, The Elms, Topsham, Devon.

BIRTHS.

DE REDE-READ.—On Sept. 8, at Murree, India, to Marion (Ainslie), wife of Flg. Off. R. de Rede-Read, R.A.F.—a daugh (stillborn).

DREW.—On Sept. 30, at 83, Vincent Square, S.W., to the wife D. H. Drew (late R.A.F.), of Imperial Airways—a son.

KERSHAW.—On Oct. 9, at 9, The Drive, Edgware, to Iris, wife Sq. Ldr. R. H. Kershaw, R.A.F.—a daughter.

WRIGHT.—On Oct. 5, at 5, Gerard Road, Harrow, to Winifred (Cowles), wife of Sq. Ldr. M. E. A. Wright—a son.

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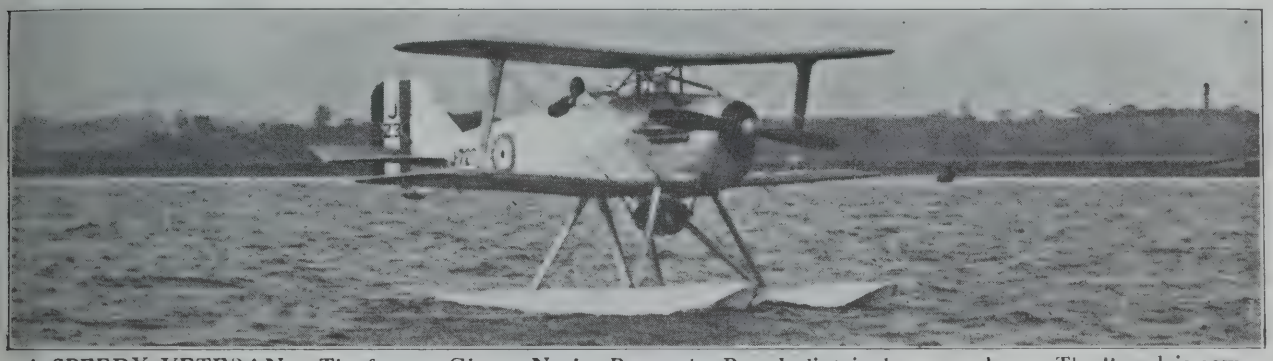
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Edited by C. Grey

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OCT. 21, 1925.

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ON HELICOPTERS AND SUCH THINGS.

Nothing is impossible in this best of all possible worlds. The lion may lie down with the lamb. The Admiralty may ve at peace with the Air Ministry and run an efficient Fleet ir Arm. The square-headed barbarians East of Warsaw ay become honest God-fearing members of human society. apan may be accepted peacefully by Europe and America as ie proprietors of the Pacific. The Air Ministry's experts ay allow somebody to design an efficient aeroplane and dmit that it is good. And some day the normal type of eroplane with fixed wings may be discarded as obsolete and ay be supplanted by the helicopter, gyropter, ornithopter r orthopter. But the time is not yet.

These remarks are caused by the prominence in the Public ye, by way of our newspapers, of the long-expected appear-ice and the prompt disintegration of the Brennan Helicopter id the apposite arrival and entertaining performance of ie la Cierva Auto-Giro. There are many much more im-ortant subjects which call for discussion, but THE AERO-LANE must live up to its reputation as "a newspaper and views-paper" so one is obliged to give some space to the opular interest of the moment.

For a start,—There are so many young people, in the Air orce and out of it, who have only begun to take an interest flying recently,—fathers and mothers of families although ey were only leaving their preparatory schools when the rmistice heralded the outbreak of Peace nearly eight years go,—that there seems reason to explain the origin of the eird words which are used to describe flying machines other an ordinary aeroplanes.

QUAINT NOMENCLATURE.

The one which one hears most frequently is the word *elicopter*, derived from *helix*, a screw and *pteros* a wing. ost people know the word "helical," which means screw-aped, but many think that the latter part of the word elicopter is *copter*. The real division of it is *helico* and *pter*. Also most people have heard of the earliest of flying things, ie pre-historic *pterodactyl*, which only means "wing-ngered"—the predecessor of feathered birds and the an-estor more or less of the bat and flying-fox. Perhaps that ay help to fix the *pter* part of the words in people's emory.

The idea of the designers of helicopters is to make a machine with wings which revolve on a vertical axis or shaft and act like the blades of a screw, so that they screw the machine up into the air. This is in opposition to the scheme of an ordinary aeroplane, in which the machine is drawn along by a screw on a horizontal shaft and so attains a speed sufficient for the wings to lift the machine.

The *gyropter* is merely another name for a helicopter, coined by someone who wanted to be different. It means, if anything, a machine in which the wings gyrate or revolve.

Senor de la Cierva chooses to call his machine an *Auto-giro*, because the wings gyrate automatically on their own account, without being driven direct by the engine. Captain Sayers explains elsewhere in this paper why they do so. One hopes that readers of THE AEROPLANE will understand his lucid explanation. It is almost comprehensible to one's own limited understanding. But the la Cierva machine might just as well be called a helicopter or a gyropter. It would helico-gyre quite as amiably.

The *ornithopter* is a machine whose wings flap in the manner in which the designer imagines the wings of a bird to flap. The derivation is *ornithos*, meaning "of a bird" (as in "ornithology"), and our old friend *pteros*.

Quite a number of such machines have been built. Some have flapped so well that they have run frenetically along the ground before upsetting. Most of them have flapped themselves over without moving on the ground. And none of them have ever hoisted themselves off the earth.

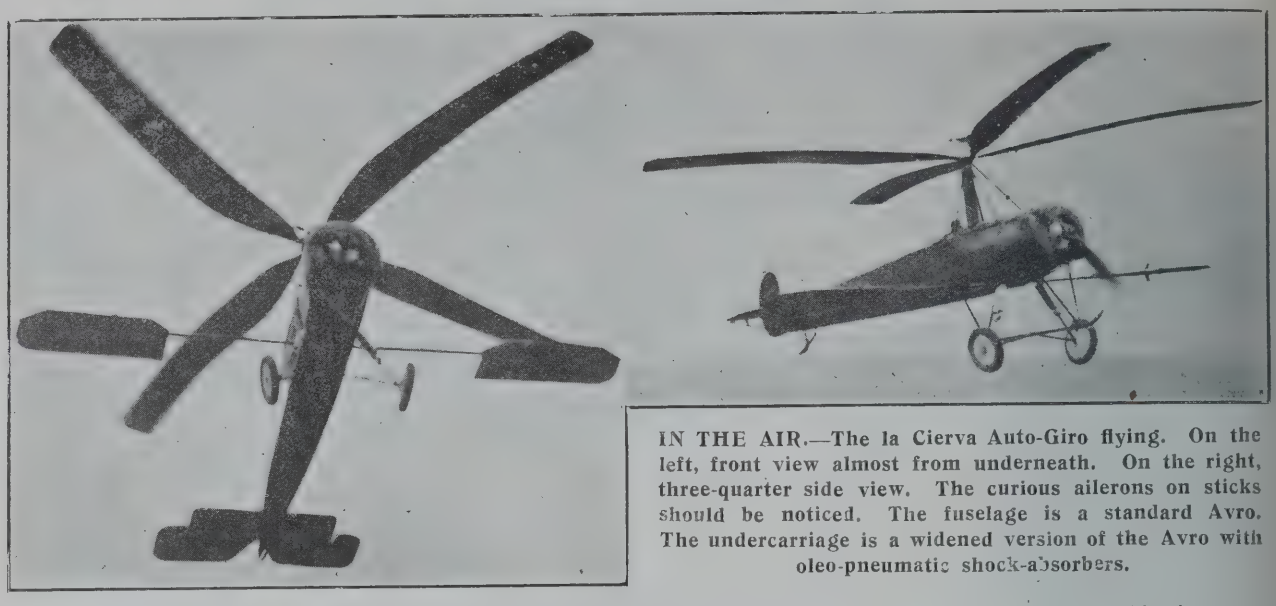
The *orthopter* is also a flapping wing machine, but is generally designed by a superior person. The derivation is *orthos* meaning right and again *pteros*. As the name implies, it is intended by the inventor to flap its wings in the way in which a bird ought to flap its wings if the Almighty had known more about the science of aeronautics than he did at the period described in the first chapter of *Genesis*. As with ornithopters, a lot of such machines have been built and have flapped themselves furiously to pieces but none have ever flown.

THE FLAPPING IDEA.

Far be it from one to say that no flapping machine will ever fly. But in both species of apparatus, the weight and complication of cranks and levers and universal joints and



THE PROBLEM OF THE MOMENT.—Here the la Cierva Auto-Giro is seen starting. People ask, what is its practical value? The answer is that it is about as much use as were the aeroplanes of 1910. But these have developed somewhat since then, so whether it will revolutionise flying or not remains to be proved.



IN THE AIR.—The la Cierva Auto-Giro flying. On the left, front view almost from underneath. On the right, three-quarter side view. The curious ailerons on sticks should be noticed. The fuselage is a standard Avro. The undercarriage is a widened version of the Avro with oleo-pneumatic shock-absorbers.

rotary-round-the-corner motions have been too much to allow the hopeful inventors to defeat the force of gravity.

Such inventors always argue that as birds are the best fliers we should copy birds in designing our flying machines. The answer to that is that when one studies the design of a bird one is always left in doubt as to whether any given point of design is there for aerodynamic reasons (to make it fly better) or for constructional reasons (to allow bone and muscle to hold together), or for alimentary reasons (to permit the mechanism to be fed, as part of a living organism).

One can easily copy Nature's designs too closely, as was explained very lucidly many years ago by a lecturer who remarked, on this very subject of copying bird design,—"When the chief designer of the Navy is designing a new battle-ship, he does not do it by contemplating a bloater."

So we come back at the finish to rotary motion, instead of flapping or reciprocating motion, as the most economical and efficient, and arrive at the helix or screw as the best method of imparting motion to any vehicle in the sea or air,—and many motor-cars have screw drives (commonly called worm drives) on their propeller-shafts and in other places where motion has to be transmitted at an angle.

One argument which has been advanced against rotary motion to screw drives is that in spite of His omnipotence the Almighty did not design fishes with screw propellers in their tails nor horses with wheels. and that therefore they are imperfect mechanical devices. One has even heard it said that the Almighty is not all-powerful in that He could not design a rotating joint in a living organism, because of the difficulty of feeding the rotating part. The answer is quite simply that each living organism is perfectly designed for its own place in the scheme of things, and that rotary motion was left for human beings to design, to prove their superiority over the other animals.

The Helicopter Fallacy.

For the moment the flapping wing machines may be left out of our consideration, because none of them is at present anywhere near lifting itself off the ground. But several machines of the helicopter species, notably the Pescara and the la Cierva, have actually lifted. In fact the Cornu helicopter screwed itself a foot or two from the earth somewhere about the year 1908 or 1909,—before any European aeroplane had flown properly. Therefore helicopters are worth discussing, if only for the sake of warning people not to expect too much.

What fascinates the ordinary person, who knows little of flying, about the helicopter is the notion that it can rise straight off the ground, hover vertically over one spot, and descend vertically into any piece of ground in which there is enough space for it to stand. And it is precisely in that notion that the fallacy about the helicopter lies.

During the War 1914-18 people were continually coming along with wonderful designs for helicopters which were guaranteed to hover over one spot and drop bombs with unerring aim right onto their mark. The inventors always forgot that no matter how vertically their machines hovered, the bombs would have to fall through various strata of air at different heights, each stratum of which might deflect the bomb a degree or two and drift it away from its target. And they forgot that a fast-flying aeroplane would be much less likely to be hit by anti-aircraft gunfire than a stationary helicopter would be, while at the same time an aeroplane with good sighting instruments would enable its crew to drop bombs with at least as much accuracy.

Apart from that, the real difficulty about the helicopter is in designing an adequate control mechanism for it. Any moderately competent engineer could design a machine which would screw itself into the air. It is even possible to make one which will descend without too much of a bump if its engine should choose to stop while in the air. But the trouble is to get it under control the moment it leaves the ground.

The Control Trouble.

Helicopter enthusiasts always seem to forget that the instant it leaves the ground a helicopter must move whichever way the wind is blowing. Thus, if a helicopter starts off a tennis-court in a ten-mile-an-hour wind, as soon as it loses contact with the ground it will drift down wind at ten miles an hour, and in a few seconds it will bang into a bush or a tree or a wall or whatever obstacle there may be in that direction.

Consequently, if it is to ascend vertically, the pilot must be able to drive it up-wind at whatever may be the speed at which the wind happens to be blowing. And if the wind be at all gusty the machine must be pretty nippy on its



THE MEN OF THE MOMENT.—Senor Don Juan de la Cierva, Sir Samuel Hoare and Mr. Frank Courtney.

trols and the pilot must be very expert in handling them e is to avoid a crash.
here is just the same difficulty in descending. The hine cannot be left to itself to drop vertically. It must headed into the wind at precisely the speed of the wind is to avoid drifting down wind and hitting some obstacle. f course all that is obvious enough when one comes to k about it. But surprisingly few people do seem to think it it before they start talking or writing about helicopters vertical lift machines.
hat it means is that, besides the mere mechanism neces- to lift the machine, there must be mechanism to drive rward and to control it sideways and every other way. all that means complication and consequent weight. , no matter how nippy the controls may be, it means the machine must have room to manœuvre.
ow, when once the need for room to manœuvre is nowledged we may just as well turn our attention to per- ing the ordinary aeroplane so that it will lift from the ind more quickly and will alight more slowly. And, slots and flaps and improved wing-sections, the ability is that in the end the aeroplane will prove to be more useful vehicle, and handier in every way.
rying to make a helicopter a practical vehicle always es one as being rather like trying to make a motor car ch can move sideways, as well as forwards and backwards, hat it can the more easily get out of tight corners. It asy enough to make it do so, but it is not worth while use the added complications merely spoil what is already ghly satisfactory vehicle.
he Brennan helicopter apparently rose well enough, but oppled over and crashed because it lacked the controls essary to put it and keep it where the pilot wanted it. la Cierva, on the other hand, seems by all accounts to d as much run along the ground as does any ordinary plane before it lifts. And, though it lands slowly and be dropped onto the ground vertically from a height of eral feet, it does nevertheless need just as skilful landing loes an ordinary aeroplane to get it to go where the pilot its to put it.

THE BRENNAN WASH-OUT.

o far as the helicopter of the Brennan type is concerned, nay be washed out of consideration. Mr. Brennan is a ily ingenious person, but he seems to have a talent for enting things which nobody wants.
he Brennan torpedo was extremely clever, but nobody ited a torpedo which could be controlled by wires from shore. They preferred one which could be shot from a e in the open sea.
he Brennan monorail was a fascinating idea, but nobody ited a single-track railway which involved so much weight gyroscopes and concomitant gadgetry. They preferred common or two-rail affair of commerce.
Ir. Brennan was fortunate in securing from Mr. Lloyd rge or his officials a contract of apparently unlimited ent. Rumour has it that he has been allowed to draw the t part of £1,000 a week (not a month or a year) with which uild his apparatus and pay himself and his assistants. As the contract has now been running for several years one hopes that he has put by enough to keep him to a ripe old age. But the contract ought now to be ended, for Mr. Brennan has had ample time in which to make good. And as his machine has not made good it is time that further expenditure on it ceased.

THE AUTO-GIRO PROPOSITION.

The Auto-Giro is a different proposition. Senor de la Cierva has only spent some £12,000 on it and he has at any rate produced a machine which flies. Therefore it seems worth while to spend a few more thousands of pounds on making a newer and bigger and better machine with a modern engine, just to see what can be done with it.
Senor de la Cierva says that he can make a machine which will carry a big load or one which will fly very fast. Considering that the Air Ministry thinks nothing of spending £10,000 or more apiece on aerial white elephants such as those which used to be handed out at Croydon whenever there was an official tamasha there, we can very well afford to spend as much apiece on a couple of experimental Auto-Giros, one a big passenger-carrier and one a small speed-machine, and prove to ourselves whether the idea is really better than the fixed-wing aeroplane to which we have become accustomed.
Certainly the Auto-Giro is a terrible sight in the air. But appearance is all a matter of custom. And anyhow it cannot be so terrible to see as have been some of the aeroplanes which have been produced with the approval and assistance of the Air Ministry's technical experts. So let us proceed with the good work.
Personally one does not believe in the Auto-Giro. But on the other hand one does not disbelieve in it. The inventor has a reasonable explanation for each and every one of the quaint and novel ideas which compose the whole.
Spain discovered and conquered a goodly portion of America,—assisted, it is true, by a Genoese named Christopher Columbus. And it is possible that Spain, assisted by English mechanics and English money, may discover how to conquer the air. Anyhow it is worth while to have a try.

FUTURE POLICY.

Meantime one does not recommend the members of the Society of British Aircraft Constructors to shut down all work in progress on ordinary aeroplanes. Considering that, in spite of all modern improvements, the Air Ministry has just placed an order for a hundred of the dear old De Havilland 9as,—of 1917 design—with Liberty engines from the inexhaustible store of the Aircraft Disposal Co. (now A.D.C. Aircraft Ltd.)—one may safely assume that even if the Auto-Giro fulfils and surpasses all its inventor's expectations, we shall still be ordering Vernons and Southamptons and Fawns and Grebes in 1933, and the machines on the present Secret List will still be going strong in 1940.
Therefore, let us wish all success to Senor de la Cierva, if only because his Auto-Giro has completely put the lid on the sempiternal Brennan Helicopter. And let us proceed to build and advertise British Aeroplanes rather more than usual. They will certainly be useful in the next war, even if we use something on the Auto-Giro principle in the war after that.—C. G. G.

SOME TECHNICAL NOTES ON THE AUTO-GIRO.

By W. H. SAYERS.

he la Cierva Auto-Giro, developed during the past four rs in Spain, and now at Farnborough for demonstration nd investigation by the official British authorities on avia- , is a machine of a very interesting type.
Whether the type is capable of development into a practical itary or civil aircraft yet remains to be seen, but there us to be little doubt that it will serve at least one useful pose—namely that of persuading one or two at least of se who have convinced themselves of the inherent futility ll aircraft of the helicopter or allied types that not all heir convictions have a sound basis in fact.
has been expressly denied—on the authority, it is under- od, of the inventor—that the "Auto-Giro" is a helicopter. fact it differs in important respects from the conventional n of a helicopter. The machine itself consists of an inary aeroplane fuselage, undercarriage, tail unit, power nt, and airscrew. In place of the normal wings it has ve the fuselage a set of four supporting surfaces, arranged the form of a large-diameter, four-bladed airscrew, which free to rotate but are not directly driven by the power nt.
he axis of this rotating system is slightly inclined backwards tive to the line of flight, or of airscrew thrust. Thus, if whole apparatus is set in motion by the airscrew, the ting vane system moves with a velocity which can be re- ed into two components—one at right angles to, and one allel to, its axis of rotation.
an airscrew free to rotate about its axis is given a velocity allel to this axis, it will be set in rotation, and it will de- op a thrust which tends to oppose the enforced motion. ordingly the vanes of the Auto-giro may be caused to rotate, in virtue of the component velocity, parallel to the vane axis, which results from the thrust of the (ordinary) air- screw and engine fitted.
This auto-rotation produces a thrust along the vane axis—that is slightly inclined backwards from the vertical—which may be regarded as analogous to the resultant force on an aerofoil, and can be resolved into lift and drag.
Actually the vanes may be considered to be aerofoils, which have not only a velocity due to the horizontal speed of the machine as a whole, but also the velocity due to rotation. Because the lift on a given surface varies as the square of the velocity, it can be shown that the lift on the vanes, when both rotating and moving forward, is considerably greater than that which would be caused by the velocity of forward motion alone. For instance, suppose the velocity due to rotation at the tip was numerically equal to the forward velocity of the whole. Then one tip—when moving forward—will have twice the average velocity and four times the lift intensity corresponding to average velocity. The opposite tip will be stationary in the air—and therefore develops zero lift. The average lift for these two tips is twice that which would be due to the forward velocity as a whole.
In other words the rotation of the vanes increases the effective speed so far as lifting capacity is concerned, without increasing the forward speed of the whole appliance. The matter may also be put in another way. Although the apparatus as a whole may be stationary, if the vanes are rotating they have an effective lifting speed. Thus one may have an effective wing speed despite the fact that the machine is not travelling forward.
The landing speed—or the speed of support for any other

conditions—is essentially a wing speed. In the aeroplane the wing speed is the speed of the whole machine, and the speed of support can never be zero. In a rotating-wing machine the wings may possess a speed sufficient to support in virtue of rotation alone, and the machine itself remain stationary. Therefore, such a machine can ascend, hover, or land without forward velocity, not because zero supporting speed is possible, but merely because the wings can maintain the necessary speed without that speed being shared by the whole appliance.

This argument is applicable to all forms of helicopter—and the la Cierva Auto-Giro differs from the usual type of helicopter only in that the rotating vanes are indirectly driven instead of directly driven.

This difference is really a secondary difference—it is precisely similar to the difference between a power-driven aeroplane and a glider. The vanes of the Auto-Giro may in fact be regarded as always gliding, and as aerodynamically exactly equivalent to the vanes of a normally driven helicopter, whose engine has failed and which is descending under gravity with the vanes rotating in virtue of that descent.

Horizontal flight in this condition is possible if the airscrew of the Auto-Giro provides a thrust equal to the sum of the air resistance of the fixed parts of the machine, plus the horizontal component of the vane thrust (caused by the backward inclination of the axis. The difference between the helicopter with the power drive to its vanes and the Auto-Giro, is actually more apparent than real.

The driven helicopter vane is rotated by its engine at a speed in excess of that at which it would "glide" freely with the machine falling under gravity. In the Auto-Giro this excess speed is provided by added forward velocity of the whole machine, caused by the engine and airscrew. The Auto-Giro, therefore, cannot ascend vertically or remain absolutely stationary. It can be supported at a much lower forward speed than can any fixed wing machine of equal wing loading.

One interesting feature of the Auto-Giro is the method which secures lateral balance. With vanes rotating and machine moving forward, the vane whose rotation speed is added to the forward speed, would normally lift more than the opposite vane. To overcome this the incidence of the forward-moving vane is automatically reduced until an equal total lift is produced on the two sides. This has led to the statement in the daily press that the machine combines rotating and flapping wings

The main interest of the whole machine—so far as this country is concerned—lies in the fact that it affords definite proof that a rotating-wing aeroplane can be made which combines a very low landing speed with reasonable control and stability, and that this type of aircraft can descend safely, engine off, supported by the free rotation of its surfaces.

That these qualities could be achieved are fairly obvious to those who are able to think clearly in terms of the principles involved in this general type of aircraft. Nevertheless many who know enough to know better have failed to realise the actual conditions involved, and have expressed their disbelief in the possibility of attaining these qualities. If the Auto-Giro does no more than to give such persons grounds for revising their hastier conclusions, it will have served a useful purpose.

How The Auto-Giro Works.

Since the above note was written one has had the op tunity of seeing the machine in action. At least one sp tor was affected as was the lady seeing a giraffe for the time and refused to believe it. Frankly there is some cuse for this attitude. The amazing simplicity of the w machine is sufficient to excuse any incredulity.

The mechanism which is used to equalise the loading tween vanes is nothing but a free hinge at the inner en the spar of each vane. This hinge would permit the v to fold downwards, were they not supported from abov wires in which are inserted ordinary rubber shock-absorb The vanes are apparently perfectly free to fold upwar they are in fact held from folding by the resultant of ce fugal force which keeps the spars in tension.

The incidence adjustment is secured entirely automati in virtue of this hinging of the vanes. If a pair of vanes considered at the moment when their spans are fore and their air speed is that due to rotation only. As the a of these vanes moves round and forward its air speed is creased by the forward speed of the machine, and this crease tends to increase the lift on that vane. The resu that this vane folds upwards further and the upward m ment effectively decreases the incidence. The forward v as it moves round has its air speed decreased, and accordi falls which increases the incidence.

The Machine.

The machine now in existence is a standard 504K Avro f lage and undercarriage, fitted with enlarged elevators, an undercarriage of more than normal track. A steel spar attached to the lower fuselage longerons carries at tips a pair of ailerons.

Above the fuselage, emerging from the front cockpit a steel tube, slightly inclined backwards, and braced by steel tubes forming a pyramid. On the first tube the vanes are carried by a bush rotating freely on the tube. vanes are apparently built each upon a single tubular which at its root is attached to substantial hinges on bush. The main tubes projects above the vanes and from extension of the bush a set of four "landing" wires "Sandow" insertions, serve to prevent the vanes from f ing right down when the machine is stationary.

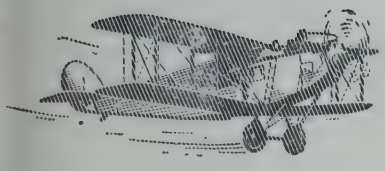
Starting.

Before starting a flight the vanes are set in motion hand. A cord is wrapped round four pegs—one on e vane—and pulled by assistants. This is to be regarded as expedient in an experimental machine and a proper star gear would normally be fitted. At the angle of rake of vane axis attainable on the ground the vanes would tak long time to accelerate to their full speed as a result the machine's motion along the ground, and some in starting gear for them is necessary.

Having started the vanes the engine is opened up and machine proceeds to roll normally. For a time noth seems to happen, but suddenly the vanes noticeably fol little upwards and their speed of rotation increases, and machine seems to jump into the air some five or six f Thereafter it behaves very much like an ordinary aeroplane its tail is held down it climbs: with the fuselage horizo it flies horizontally; and if the nose is pushed down descends. With the engine off it will "glide" at much the same sort of angle as any reasonable aeroplane.



THE HAPPY HAMPSTEAD.—The Handley Page W.9, known as the Hampstead, on arrival at Croydon Aerodrome on Monday. The machine is driven by three Jaguar engines and is in the happy position of being able to climb with a full load on any two.



Wherever flying is successfully carried out, Napier aero engines are known and used. Of course their extra power, compactness and economy in upkeep have all helped to popularize them, but the chief reason they are universally adopted is their reliability:

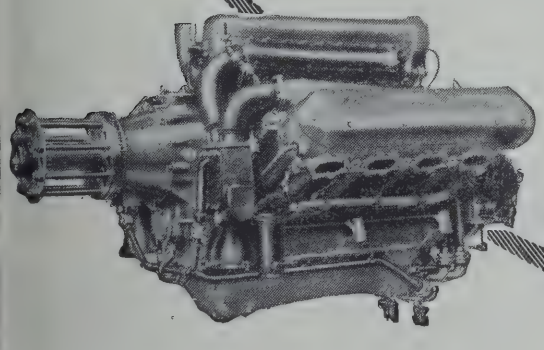
On commercial service, one Napier aero engine in use by Imperial Airways has covered 170,000 miles and is still in service.

Major Zanni, the Argentine Airman, used a Napier engine on his flight from Amsterdam to Tokio (10,000 miles) in 22 days' flying.

The last three Aerial Derbys have been won by Napier-engined Gloster machines.

To obtain the best performance from your aeroplanes, fit Napier Aero Engines





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W.3

turns cleanly and with a reasonable bank and shows no sign of swinging when cornering.

In The Air.

If the tail is held down at an angle approximating to the stalling angle of an ordinary aeroplane with the engine full on, the machine keeps in the air at a very low forward speed. What that speed is one hesitates to say—it certainly does not look over 20 m.p.h. or so.

If the tail is still more depressed the speed drops further, but the machine does not maintain its height. On the particular occasion there was a ground wind of about 5 m.p.h., and Mr. Courtney was able to descend at an angle which was not more than 30° to the vertical, with a downward velocity which looked to be about 50 to 100 ft. per min.

With the engine off he descended to within five feet of the ground at about the same angle—but at a higher falling speed,—and then, giving a burst of engine, he checked the downward speed to within the capacity of the undercarriage and came to rest undamaged within 10 ft. of his first contact with the ground.

On another occasion he made a perfectly normal aeroplane landing—gliding in at quite a fine angle and flattening out as usual. The landing speed may have been 20 m.p.h.—and the machine stopped within ten yards or so.

The machine is evidently very controllable and answers—particularly to the elevator control—very quickly—Thus it would seem that a pilot could glide in normally to land, discover that he was going to overrun his ground and change rapidly to the nearly vertical descent conditions. Or, descending steeply by putting his nose down and giving a burst of engine, he co accelerate rapidly, if he found that he was not going to re his landing place. In fact one may apparently do anyth that can be done on an aeroplane, except that one cannot st

The Auto-Giro at present is regarded as a purely exp mental machine, of very considerably greater weight t is necessary, and therefore of low performance. The pres sample has a span of 11.0 metres (36 ft.), weight loaded ab 900 kg. (2,000 lbs.), and has a maximum speed of 68 m.p with a 110 Le Rhône engine.

The designer claims that with the data now available A giros could be produced of higher speed than any exist aeroplanes, but with a very moderate landing speed. has definitely suggested a top speed over 300 m.p.h. an landing speed under 40 m.p.h., as attainable with a 450 h Hispano-Suiza. Whether these hopes can be realised or n he has undoubtedly produced a very interesting and rema able aircraft

An Auto-Giro Lecture.

The Royal Aeronautical Society has arranged for Se de la Cierva to deliver a lecture to-morrow, Oct. 22, his Auto-Giro. The lecture will be delivered at the Ro Society of Arts, 18, John Street, Adelphi (next door to Little Theatre) at 5.30 p.m. The Society hopes to show film of the Auto-Giro in the air.

All who wish to attend the lecture may obtain a card admission on application to Mr. I. Lawrence Pritchard, Honorary Secretary of the R.Ae.S., at 7, Albemarle Stre W.1. Air Vice-Marshal Sir W. Sefton Brancker, Director Civil Aviation, will take the Chair.

THE PROGRESS OF THE SCHNEIDER TROPHY CONTEST.

The Royal Aero Club has arranged with Reuter's Agency to relay direct to the Club premises the progress of the race so that members will know what is going on at Baltimore within a few minutes of its happening. The flying starts at 2.30 p.m. Baltimore time which is about 7.30 p.m. over here. News of the progress should therefore be received in the Club from about 8 p.m. onwards.

The order of starting will be as follows: (1) Supermarine-Napier S.4 piloted by Mr. Biard, (2) Curtiss R.3.C.1 piloted by Lt. Doolittle, (3) Gloster-Napier III piloted by Mr. Broad, (4) Curtiss R.3.C.1 piloted by Lieut. Cuddihy, (5) Curtiss R.3.C.1 piloted by Lieut. Ofstie, (6) Macchi piloted by Signor de Briganti, (7) Macchi piloted by Signor Morselli.

All the machines have arrived at Baltimore. It is generally believed that the Supermarine-Napier S.4 is the fastest machine in the contest.

Baltimore Late Finals.

On Thursday of last week, Mr. Hubert Broad made the first test flight on the Gloster-Napier III at Baltimore. The flight was quite successful.

On Sunday Mr. Henri Biard had the Supermarine-Napier S.4 out and made two flights over Chesapeake Bay.

When the Team arrived at Baltimore they were splendidly received by Major W. D. Tipton, Charles A. Missen, J. Hildebrandt, T. T. Perry, George Smith and Major Temple Joyce and many other members of the Flying Club of Baltimore. They were treated royally, and since then everything has been done to make them as comfortable as possible.

Both the Italian flying boats have arrived.

This week the Team will get in as much practice as possible on the machines, and on Thursday the engines which have been in the machines during all their practice flying will be removed and an advanced type of direct-drive Napier Lion will be substituted This latter engine is reputed to give even more horse-power than the type hitherto used and it is expected that the speed of each machine will go up slightly.

THE AWFUL SECRET OF THE R.33.

On Thursday, Oct. 15, successful tests were made with dropping and rehooking a light aeroplane from and onto an airship. But please do not tell anyone, or the Air Ministry *will* be so cross.

The airship was the R.33 and the aeroplane was the D.H.53 piloted by Sq. Ldr. Haig, all, of course, thoroughly secret productions. The previous evening the airship had been taken from her shed and attached to the mooring mast with the aeroplane in position. On Thursday morning the airship ascended to a height of 5,000 feet and Sq. Ldr. Haig then detached himself and the machine from the airship. He flew for several minutes in the neighbourhood of the airship and then apparently attempted to reattach to the hull.

Owing to a ridiculous attitude of secrecy on the part of the Air Ministry who should not be confused with the Schneider Committee or other astral bodies no Press people were allowed in the sacred precincts of Pulham though a body who liked could watch from outside with glasses. The fore there is no first-hand information of actual eye-witnes of close-ups. One watcher stated that the machine appea to re-hook but hit with the airscrew the trapeze-like atta ment to which it was intended to attach it. The airscrew damaged, so Sq. Ldr. Haig switched off his engine and lan the machine safely.

Another report says that he was flying along under the a ship, which was moving a little bit too slowly and he hook on all right but as he was travelling faster that the airs the act of hooking pulled him up with a jerk which cau the aeroplane to throw up its nose and smashed the airscr on the suspension wires. After which Sq. Ldr. Haig hooked again and glided down in safety.

Why on earth the Air Ministry wished to be so appallin secret about these experiments, which have undoubtedly tak the popular fancy, is one of those things which passeth understanding. Successful experiments on similar lines w made as early as Sept. 18, 1923, at Langley Field, Virgin when a Sperry Messenger biplane hooked and unhooked its from the U.S. Army Airship D.III. Similar feats have be performed frequently since then, and so far as can be se the apparatus was very similar in both cases.

The Air Ministry's secret policy with regard to t Schneider Cup machines was silly enough but this offic order gives the impression that the passion for secrecy affecting the minds of the officials concerned.

It is momentarily expected that the R.33 and the D.H. will be put on the secret list. Probably Sq. Ldr. Haig Sealyham will also join the secret list, that haven of many Air Ministry indiscretions.—G. D.

THE BEAUMONT CUP COMPETITION.

On Oct. 18, the contest for the Beaumont Cup was flo at Istres. There were two entries, a Nieuport-Delage mon plane fitted with a 600 h.p. Hispano-Suiza engine and Salmson monoplane fitted with a 500 h.p. Salmson engi The Nieuport-Delage was built for the race last year and t Salmson for the race the year before.

M. Sadi Lecointe who had been granted leave from t war in Morocco to compete in the race covered the 300 km in 57 mins. 36.2-5 secs., averaging 312.5 km. (194 miles) p hr. on the Nieuport-Delage monoplane.

His speed last year on the same machine was 311.24 k (193.2 miles) per hr.

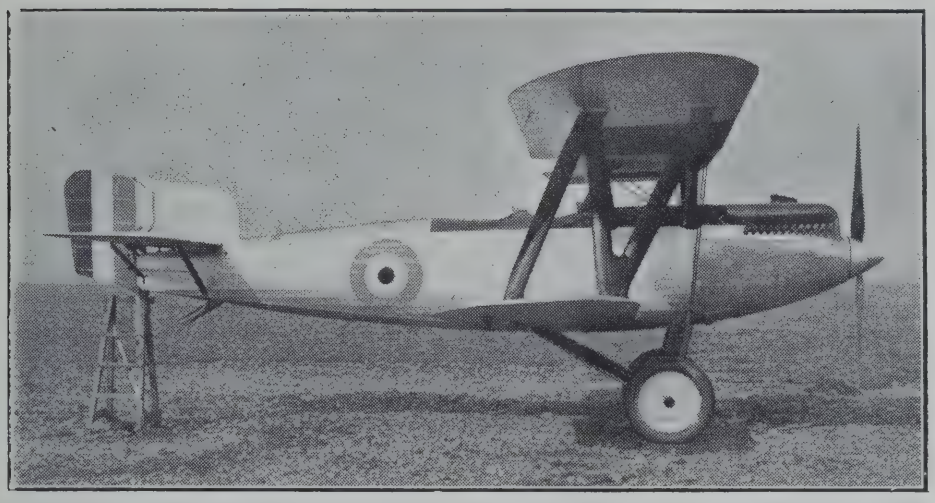
Thus it may be seen that Commodore Beaumont Schönberg) has hardly succeeded in his endeavour to b come the successor of the late Mr. Gordon Bennett a Mr. Henri Deutsch de la Meurthe.

A SOUTH AFRICAN AIR MAIL SERVICE.

It has been reported in the Johannesburg *Star* that arrang ments have been made by which a company using five Junke monoplanes will operate an Air Mail Service presumab between Cape Town and Durban, beginning early in 1926.

South African pilots will be employed and Germa mechanics will instruct local personnel in the maintenan of the aircraft.

R·A·F· TYPES — No 7.



THE FAIREY "FOX" AEROPLANE.

The "Fox" two-seater day bomber is the latest Fairey aircraft to be ordered in large quantities for the Royal Air Force, it possesses a performance which far surpasses that of any other aeroplane in its class throughout the world.

The Fairey "Fox" is fitted with the Fairey Felix D.12 engine and with the Fairey-Reed metal airscrew, both of which contribute largely towards the remarkable speed obtained with this aircraft.

FAIREY AIRCRAFT

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THE ROYAL AIR FORCE.

The London Gazette.

Oct. 13.

General Duties Branch.—Flg. Off. G. A. Hadley is granted a perm. comn. in the rank stated (Sept. 26); J. C. H. Tavendale is granted a perm. comn. as a Plt. Off. with effect from Sept. 12, and with seniority of Sept. 12, 1924.

The following are granted S.S. comns. as Plt. Offs., on probation, with effect from and with seniority of the dates indicated:—J. L. Chadwick (Sept. 28); H. F. Gower (Sept. 30).

The following Plt. Offs. are promoted to the rank of Flg Off.:—W. C. Adams (Aug. 3); P. E. Nicholl (Oct. 14).

Sq. Ldr. H. A. Michell, O.B.E., is placed on the retired list (Oct. 11); Flt. Lt. E. S. Ades resigns his perm. comn. (Oct. 14).

The following resign their S.S. comns.:—Flg. Off. D. R. Dawson (Oct. 9); Plt. Off. W. T. Collins (Oct. 10).

Flt. Lt. V. A. Albrecht (Capt. Manch. Regt.), relinquishes his temp. comn. on being placed on the half-pay list (Army) on account of ill-health (Oct. 14). The S.S. comn. of Plt. Off., on probation, P. Clavell-Blount is terminated on cessation of duty (Oct. 14). The notification in the *Gazette* of Sept. 29 concerning Flg. Off. H. Macmillan is cancelled.

Medical Branch.—Flg. Off. W. J. Hutchinson, M.B., is transferred to the Reserve, Class D2 (Oct. 15).

Reserve of Air Force Officers.—The following are granted comns., on probation, in Class A, General Duties Branch, in the ranks stated (Oct. 13):—Flg. Offs.—D. Gardiner, S. Jones, W. M. Miller. Plt. Offs.—E. B. Fielden, C. Kenney, H. Rhodes, L. S. Webb.

Plt. Off. H. D. Morley is confirmed in rank (Sept. 21); Flt. Lt. A. C. Ferguson relinquishes his comn. on account of ill-health, and is permitted to retain his rank (Oct. 14).

Appointments.

Week ending Oct. 19.

General Duties Branch.—Wing Commander G. G. H. Cooke, D.S.C., A.F.C., to Headquarters, Iraq, for Air Staff (Armoured Car) duties, 21/9.

Squadron Leaders H. S. Powell, M.C., to R.A.F. Depot on transfer to Home Estab., 8/8. V. Greenwood, to H.Q., Iraq, 26/9. G. E. Godsave, to No. 4 Armoured Car Co., Iraq, 21/9.

Flight Lieutenants W. Underhill, D.S.C., to H.Q., Iraq, 21/9. T. O. Clogstoun, to I.A.A.D., Henlow, 6/10. F. Beaumont, to No. 24 Sqdn., Kenley, 26/10. H. Bligh, to No. 1 F.T.S., Netheravon, 26/10. A. P. Ritchie, A.F.C., to Inland Area Communication Flight, Northolt, 21/10. H. C. Black, to No. 5 F.T.S., Sealand, 26/10. W. A. B. Buscarlet, to C.F.S., Upavon, 26/10.

Flying Officers F. Woolley, D.F.C., M. H. Aten, D.F.C., (Hon. Flt. Lt.) A. W. Bates, and F. E. Watts, to No. 1 F.T.S., Netheravon, 26/10. J. T. O'Brien-Saint, to R.A.F. Staff College, Andover, 16/10. H. J. Wykes and D. E. Godwin, to No. 2 F.T.S., Digby, 26/10. J. C. Hill and V. Harris, to C.F.S., Upavon, 26/10. R. Y. Eccles, to No. 111 Sqdn., Duxford, 26/10. J. H. Slater, M.B.E., to Aircraft Depot, Iraq, 18/9. C. H. W. Boldero, to R.A.F. Depot on transfer to Home Estab., 1/10. G. V. T. Thomson, to R.A.F. Base, Gosport, 19/10.

Pilot Officers M. Brunton, I. G. E. Dale, A. R. Dunlop, and V. C. Taylor, to No. 41 Sqdn., Northolt, 28/9. W. J. Kelly, R. Matheson, and H. A. M. Weir, to No. 12 Sqdn., Andover, 28/9. T. H. Rowlands, to No. 99 Sqdn., Bircham Newton, 28/9. F. Priestman, to No. 11 Sqdn., Netheravon, on appointment to a Perm. Comn. from Cadet College, 30/9. R. L. R. Atcherley, to No. 23 Sqdn., Henlow, 26/10.

Medical Branch.—Flying Officer (Dental) H. J. Henderson, to R.A.F. Depot, 30/9.

Stores Branch.—Flying Officers E. G. Keeping, to No. 1 S.D., Kidbrooke, 19/10. W. B. Francis, to H.Q., Special Reserve and Auxiliary Air Force, 19/10. H. C. Haywood-Gibbons, to Record Office, Ruislip, instead of to No. 4 Stores Depot as previously notified, 19/10.

Fatal Accidents.

The Air Ministry regrets to announce that as the result of an accident at Wilton, near Salisbury, Wilts, to a Bristol Fighter of the School of Army Co-operation, Old Sarum, Wilts, on Oct. 16, Plt. Off. John Stroyan Branch, the pilot of the aircraft, and Plt. Off. John Alexander Ballantyne were killed.

The Air Ministry regrets to announce that No. 327517 Sjt. Thomas Alexander Graham, the pilot of the aircraft, died on Oct. 18 as the result of an accident at the junction of the Lesser Dab and Tigris rivers, Iraq, to a D.H.9a, of No. 8 Sqdn., Hinaidi, on Oct. 13.

No. 352796 AC.1. Ridley Stanton was slightly injured in the same accident.

The Auxiliary Air Force.

Replying on behalf of the R.A.F. to the toast of the Imperial Forces at a dinner of the City Lieutenants' Club, on Oct. 19, the Secretary of State for Air, Sir Samuel Hoare, spoke of the scheme for forming Territorial Units for Home Defence.

He said that of the squadrons that came into being this week, the City of London Auxiliary Air Force Squadron would have on its establishment of 28 officers, 26 non-Regular Territorial officers, and on its establishment of 142 men 125 non-Regular *personnel*. He hoped, with the co-operation of the City Territorial Association and of Colonel Evelyn Wood, who had given such valuable help in bringing this organisation into being, to arrange that the training of these officers and men would interfere as little as possible with their ordinary employment and daily life.

The men they wanted were the skilled trained men, and they believed the kind of men they would get, both as officers and airmen, would already have been so well trained in civil life as to need very little further special training. They believed they would be able to form two splendid squadrons, later on possibly more, connected with the City.

Citizens would thus be enabled not only to take a direct part the air defence of the capital, but to learn something of the gr developments of aviation that, whether in the military or ci field, were going to play so big a part in the future life of t Empire.

No. 18 Squadron Dinner.

The Fourth Annual Re-Union Dinner of No. 18 Sqdn., R.F.C. a R.A.F., Old Comrades' Association, will take place on Nov. 7 at Three Nuns Hotel, Aldgate, at 6 p.m. Tickets, 5s. 6d. each, may obtained from J. Fuller, "The Nower," 53, Berkhampstead Aven Wembley.

Members not living in London can book accommodation at same hotel, which adjoins the Aldgate Metropolitan Station.

Iraq Aircraft Depot Sports Summary.

Cricket.—The best batting and bowling averages for the sea are as follows:—*Batting*, L-AC. Haxley, 22.2 runs per innings, A Morris, 20.9, Cpl. Hallifax, 18.9, AC. Puncher, 18.9, AC. Kelly, 1 and Cpl. Edgar, 16.5. *Bowling*, Cpl. Hallifax, 6.4, AC. Seagrove, Cpl. Rich, 7.6, and AC. Pearse, 7.9. The highest individual sco were made by Cpl. Hallifax, 128 not out, followed by AC. Kelly, and AC.1. Morris, 72. L-AC. Carter playing for "A" Squadron ver No. 1 Squadron scored 46 runs in 15 minutes, including 3 sixes 5 fours. The largest number of catches was made by L-AC. B with 32 to his credit in 47 matches. In a match versus the rest the Depot AC. Pearse of "C" Squadron" took 6 wickets for which included the "hat trick."

The most interesting game during the latter part of the sea was undoubtedly the M.T. Pool's ("D" Squadron) match agai the 2nd Bn. Beds. and Herts. Regt. on Aug. 21, 22 and 23. Winn the toss, the Pool elected to bat first, but made a disastrous st Cpl. Hallifax giving a catch to slips off Capt. Gaden's first deliv After this set back, runs came at a moderate pace, but with assistance of AC. Wilding, who compiled a steady 56, the resp able total of 135 was reached. Early disaster greeted the Pool w the soldiers opened their innings, as two catches were mis Cpl. Hallifax, however, was bowling a fine length, causing wick to fall steadily. Play ended on the second day with the score 81 for 6 wickets.

On the third day the Pool were unfortunate in losing the serv of Cpl. Hallifax who was admitted to hospital within an h of play commencing. Cpl. Seaton and L-AC Lawrence came to rescue, and the next three wickets fell for an addition of only runs. With the last two batsmen in some real good hitting seen, Capt. Gaden delighting the crowd with two huge drives 6 and a cut to boundary for 4—all off successive balls. He was 34 runs, L-AC. Lawrence brought the innings to a close, leaving Pool the winners by 4 runs.

Aquatic Sports.—During August the R.A.F. Iraq Swimm Championships were held at the Hinaidi Swimming Pool. The m successful unit was 84 Squadron with 4 wins and 1 second, but Squadron of the Depot was a good runner-up with 3 wins an seconds, "B" Squadron being third. "A" Squadron won the R. Iraq Water Polo Championship with 5 wins and no losses; t success was in a large measure undoubtedly due to the keen of their Captain (Sq. Ldr. G. Stevens) in arranging practice game

Rifle Shooting.—A match was shot off in September between te of 8 representing the Depot Officers' and Serjeants' Messes. practices consisted of 5 rounds rapid and deliberate at 500 y and 5 rounds deliberate at 600 yards. The total scores were: Offi 329 points, Serjeants 241, and the teams were: Officers—Sq. Hooper, Flt. Lts. Hanson-Abbott, Crosbie, Ashton and Crawf Flg. Offs. Daniels, Stevens and Empson. Serjeants—S.M. Hoffm Flt. Sjt. Cleaver, and Sjts. Kirby, Lawrie, Gardner, Murtagh, S and Whitten. The top score was made by Flg. Off. Daniels with points out of a possible 75.

Tennis.—During September the Officers played two matches, first was against the Serjeants and resulted in a win for the Offi by 6 matches to 1. The winners and runners-up in the Airmen's Tournament provided the opposition in the second match, the Offi winning by 8 matches to 1.

Air Ministry Golf.

The autumn meeting of the Air Ministry Golfing Society was held West Byfleet, on Sept. 23. Sq. Ldr. C. H. Hayward, the Air F champion, had the best scratch score, going round in 80. The p winners were:—

Sutherland Challenge Cup.—Gr. Capt. R. P. Mills, 92 less 14— J. S. Robinson, 94 less 16—78.

Scratch.—Sq. Ldr. C. H. Hayward, 80.

Best Nine Holes Out.—Col. F. C. Shelmerdine, 43 less 5½—37½.

Best Nine Holes Home.—A.V.M. Sir Vyell Vyvyan, 42, less 6—3

36 *Holes Scratch Aggregate* (summer and autumn meetings).— Reid, 82 plus 92—174.

36 *Holes Handicap Aggregate* (summer and autumn meeting Gr. Capt. R. P. Mills, 79 plus 78—157.

Flag Competition.—Sir V. Vyvyan at the 19th hole; J. C. 20 yards short of the 19th hole.

Eclectic.—Sir V. Vyvyan and Col. Shelmerdine tied.

Boxing

The following fixtures have been arranged by the R.A Boxing Association whose handbook is now available:—

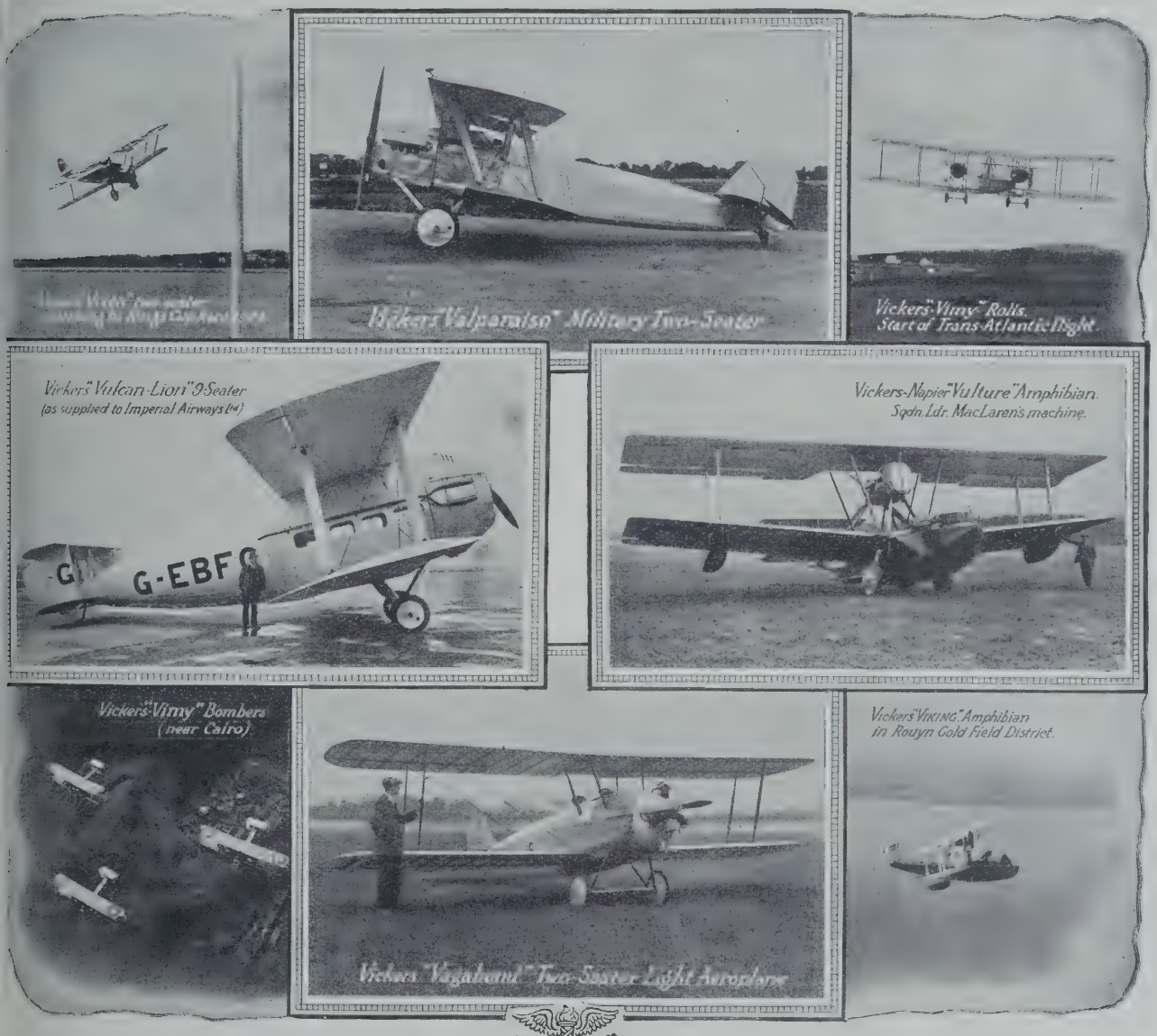
The Wakefield Competition for Air Force Novice Te will take place at Henlow on Dec. 2 and 3.

The R.A.F. Individual Championships will take place Halton on Mar. 10 and 11.

Entries for the team championships are now due and m reach the Hon. Secretary (Flt. Lt. G. C. Anne, R.A Manston) not later than Oct. 27.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

A CUCKOO IN THE NEST.

One day last week there arrived in this office from a firm called Editorial Services Ltd., "With Sir Basil Clarke's Compliments" an undated circular with an undated covering note saying :—

In the event of your making use of the information contained in the accompanying matter (which is offered to you without fee), we should be greatly obliged if you would cause a marked copy of your paper to be forwarded to us at our expense.

The circular reads as follows :—

CAIRO IN 36 HOURS

AIR ROUTE FOR WINTER VISITORS TO EGYPT.

The concluding stages of an air service project which will bring Cairo within thirty-six hours of London, are now being negotiated in London by Hassan Anis Pasha, a former member of the Egyptian Government. Before leaving for the Continent this morning Anis Pasha outlined his scheme.

"We propose to run a mail and passenger air service on the route Trieste-Athens-Alexandria," he said. "This will work on a time schedule to connect with the London-Trieste train service and the Alexandria-Cairo train and air services. We hope to have our service running in time for use by this winter's visitors to Egypt.

"The necessary capital has been fully guaranteed and in a few days from now the most suitable type of aeroplane will have been decided upon. Our experts have made an exhaustive inspection of British, French and German machines, and came to the conclusion that an all-metal aeroplane is essential, not only for its greater durability, but also because of its imperviousness to damp and heat.

"The final choice has thus been narrowed down to two machines, a French and a German. Most probably a German machine will be selected, of the same type as is now flying on the Berlin-Moscow route.

"By bringing Cairo within a day and a-half's journey from London, we expect that the attractions of Egypt as a health and holiday resort will rival those of the Riviera, especially in view of its superior romantic and antiquarian interest. Climatically, the Egyptian season is as long as that of the Riviera and the climate just as equable."

The capital raised for the venture, Anis Pasha explained, is entirely Egyptian. The machines will carry 12 passengers and 2 tons of mails.

Personally, one was happily ignorant of Hassan Anis Pasha's existence until the arrival of this circular and nothing had been heard of this proposed air route to Egypt. So one will be glad to hear from anyone in Egypt or in England who really knows anything about the project.

The idea of a Winter trip down the Adriatic to Athens and thence across the Mediterranean to Alexandria, with Winter winds blowing over the Balkans, does not strike one as being particularly alluring. There seem to be greater possibilities in a direct flying-boat line from Marseilles via Corsica, Sardinia, Sicily, Malta and the North Coast of Africa.

But the really interesting point about this circular is that although it was issued by a British firm with the compliments of a gentleman who was apparently knighted for journalistic services in 1923, it is in fact a subtle piece of anti-British propaganda. It distinctly states that, after exhaustive inspection of British, French and German machines, British machines have been judged useless and the final choice has been narrowed down to two machines, a French and a German and most probably a German machine will be selected of the type now flying on the Berlin-Moscow route, that is to say the Junkers.

The point that an all-metal aeroplane is essential does not affect the argument, for there are all-metal machines in this country at least as good as any made in Germany, and one cannot recollect any all-metal machine in France which has so far proved its capability to do regular work under hard service conditions.

The machines used on the Berlin-Moscow line are standard Junkers monoplanes which are undoubtedly reliable, though no more reliable than a good many machines of wood and metal, which can be produced in this country.

Perhaps, therefore, Sir Basil Clarke and Editorial Services Ltd. will be so good as to explain for the benefit of the British Aircraft Industry how it is that they are concerned in thus advertising Junkers machines. Nobody could object to a perfectly straightforward advertising of Junkers aircraft, mentioning them by name and recording good performances. But a good deal of objection may be raised to a back-handed advertisement of this kind which primarily depends for its effect on decrying British products.

A POLISH LONG-DISTANCE FLIGHT.

Colonel Rayski, of the Polish Army Air Service, recently flew from Paris to Warsaw, via Casablanca, Athens and Constantinople. He covered the total distance, of 4,900 miles, in 47 hours 20 mins. The last stage, from Constantinople to Warsaw, was covered in seven hours.

The machine used was a Breguet XIX (400 h.p. Lorraine-Dietrich engine).

WANTED—A CHEAP AVRO.

Does anybody happen to know of the whereabouts of an Avro which can be bought, with engine, for about £125? It need not be in flying order and it may need a good deal of reconditioning, but the would-be purchaser does not wish to acquire a complete scrap-heap. Communications to the Editor of THE AEROPLANE will be forwarded.

TOKYO—LONDON—BRUSSELS.

On Oct. 19, Major Abé and M. Kawachi, who recently flew from Tokyo to Paris and London on two Breguet XIX bi planes, left Croydon for Brussels.

Their departure had been postponed from Oct. 17 owing t unfavourable weather. They took off at 13.40 hours, accom panied by seven Gloster Grebes from Kenley in the presenc of a number of their fellow-countrymen who had assemble to bid them farewell.

They landed at Evère aerodrome, Brussels, at 15.55 hour escorted by three Belgian military escadrilles, and were me by a number of official personalities, including Genera Biebuyck, representing H.M. the King of the Belgians, M Anseele, the Minister of Railways, General Van Crombrugg Director of Civil Aviation, the Japanese Ambassador, an the President of the Belgian Aero Club.

From Brussels they will fly to Lyon and Rome, where thei flight officially ends.

Subsequently they will return to Paris, where thei machines will be dismantled by the Breguet Co.

As already stated in this paper, the flight from Tokyo t Europe was only made possible by the assistance of th Soviet Government. As far as Chita the dominance of th Japanese in Korea and Manchuria assured to the aviator adequate local assistance and freedom from interference. Bu beyond that, along the trans-Siberian railway all the way t Moscow they were entirely in the hands of Soviet officials.

One gathers that their landing places along the line wer the great military parade grounds which were built unde the Czarist Government and are still maintained by th Soviets, although in places somewhat grass-grown Appar ently, the only landing place which had to be specially pre pared was one in the Ural mountains. It was stated that thi cost £300 to clear and level.

Further it is stated that the Japanese aviators had a goo deal of difficulty with the weather owing to the fact tha the meteorological reports from stations ahead of them wer unreliable.

The statement has been made that the Soviet Governmen wished the flight to end at Moscow so that it could be re garded entirely as a return for the visit of Russian aviator to Tokyo. Apparently this political stunt was overcom with the help of the newspaper people in Moscow. From thi one would judge that the power of the Press still stands fo something even under a Soviet Government.

Seemingly the newspaper men had the sense to see tha if the flight continued into civilised countries people migh be led to believe that Russia also is civilised, whereas if th flight had stopped at Moscow the inference would be tha it was purely a military exercise arranged between th Russian and Japanese Governments. The difference in th point of view of the Tartar-Jew governors of Russia and th more or less civilised newspaper people is of interest.

The Japanese aviators stated that they received useful hel from the Russian Society for Civil Aviation and that com munications in general (telephones, telegraphs and wireless were reasonably efficient and well managed.

A GOOD SHOW.

An excellent impression of the work of the R.A.F. in Ira is given in a film called "The Lure of the East," which i now being shown at the Philharmonic Hall, Great Portlan Street.

"The Lure of the East," in spite of its unfortunate title, i a splendid film record of a very sporting effort.

Major Forbes-Leith, F.R.G.S., accompanied by Mr Montague Redknap in charge of the cinematograph apparatu and Mr. Alan Wroe, described as a diarist, drove a 14 h.p Wolseley touring car from Boulogne to Quetta, a distanc of 8,527 miles, 5,000 miles of which was without roads.

They started in April, 1924, and were 5½ months doing th journey. The trip was a thrilling and adventurous one an although Major Forbes-Leith in his introductory remark makes light of the difficulties and dangers, the film itsel showed that the journey demanded much courage and en durance.

From Damascus to Baghdad they followed the overlan desert mail route and the film shows a fleet of cars starting o with the mails across 600 miles of desert with the tempera ture at 175.

In Baghdad the expedition saw and filmed the arrival o the Air Mail (with No. 45 Sqdn.'s crest showing clearly o the nose of one of the machines), the arrival of a troo carrier and the very smart disembarkation of a party of in fantry, and the unloading of a stretcher-case from a Vicker Ambulance.

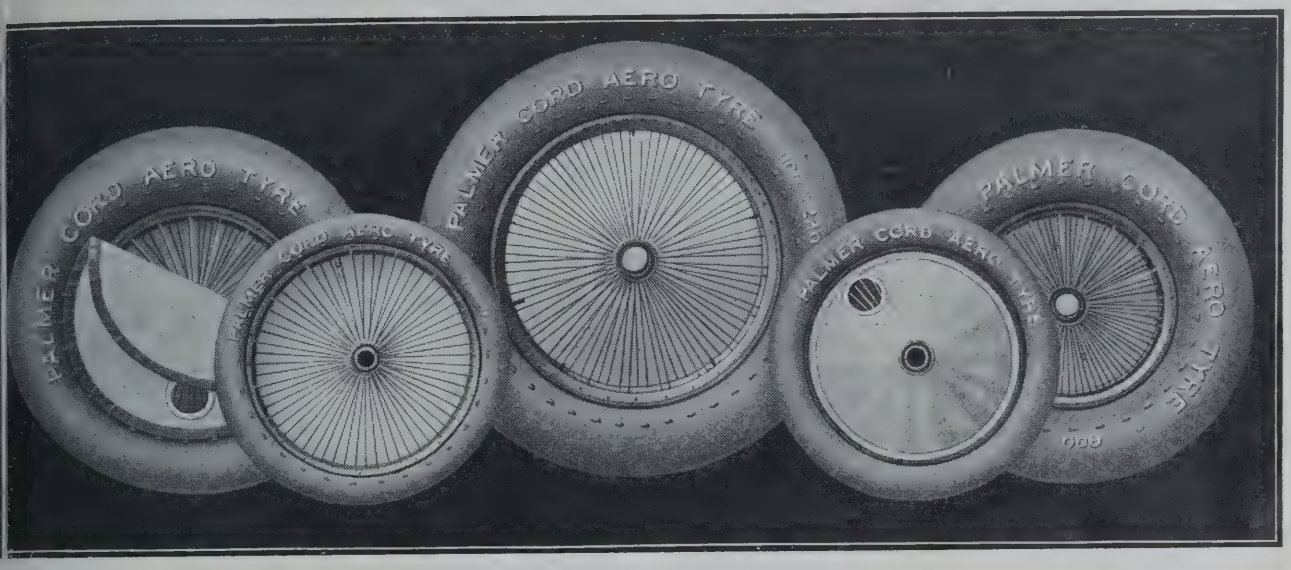
They were then taken for a flight over the surroundin country and took a splendid film from the air.

A parade of Iraq Levies is also shown.

The rest of the journey across Persia and Baluchistan is succession of thrills, and the whole film should not be misse by anybody who is interested in Control without Occupation historical remains, or the tale of a great adventure.—C. M. MC

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75×55	168	111.12	25.4	Central	700×100	99	178.	38.89	132/46	1000×150	201	185.	60.32	125/60
00×60	16	111.12	25.4	Central	,,	112	150.	38.09	Central	,,	210	185.	60.32	Central
,,	17	72.39	12.7	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
50×60	30	89.	31.75	Central	,,	147	178.	55.	Central	,,	149	185.	55.	Central
,,	138	130.	38.09	Central	750×125	77	178.	44.45	132/46	,,	155	220.	66.67	Central
75×60	21	160.	28.	Central	,,	92	185.	55.	135/50	,,	166	185.	55.	125/60
,,	34	150.	31.75	104/46	,,	95	185.	55.	Central	900×200	107	185.	55.	Central
,,	111	150.	38.09	104/46	,,	96	178.	55.	132/46	,,	108	185.	55.	125/60
00×75	21	160.	28.	Central	,,	99	178.	38.89	132/46	,,	128	220.	66.67	Central
,,	34	150.	31.75	104/46	,,	112	150.	38.09	Central	,,	137	250.	80.	Central
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50	,,	202	185.	60.32	Central
00×75	78	178.	44.45	132/46	,,	85	185.	55.	Central	1100×220	134	220.	66.67	Central
,,	79	178.	44.45	Central	,,	161*	185.	55.	135/50	,,	136	250.	80.	Central
,,	100	178.	38.09	132 46	,,	163*	185.	66.67	135/50					
,,	101	178.	31.75	132/46	,,	169†	185.	55.	135/50	1250×250	133	250.	80.	Central
0×100	77	178.	44.45	132/46	,,	211*	185.	60.32	135/50	,,	154	304.8	101.6	Central
,,	92	185.	55.	135/50	1000×150	131	220.	66.67	Central	1500×300	115	304.8	101.6	Central
,,	95	185.	55.	Central	,,	150	185.	55.	Central	,,	126	304.8	152.4	Central
,,	96	178.	55.	132/46	,,	167	185.	55.	125/60	1750×300	139	400.	152.4	Central
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE STOCKHOLM CONFERENCE.

At the Stockholm Conference on Sept. 28 to 30, 1925, it was unanimously decided that only by international co-operation and fair competition is it possible to establish Civil Aviation on a firm economic basis and to develop this new means of transport successfully.

On a motion brought by Mr. Knight, of the Italian delegation, that an International Chamber of Aviation should be founded, the Conference decided that some form of international organisation on a broad basis was very desirable.

An Investigation Committee of nine members was accordingly appointed, and was given six months in which to examine the proposals brought forward by Mr. Knight, to ascertain the views and opinions of the many air traffic companies in Europe, and to submit definite proposals for an organisation of an international character, which proposals are to be considered by the next full Air Conference in the Spring probably at Cracow.

The following were elected to this Committee :—Capt. Carl Florman (Managing Director of A.B. Aerotransport Stockholm), Herr Plesman (Managing Director of K.L.M., Amsterdam), Mr. A. L. Siverwood Cope (Commercial Manager of Imperial Airways, London), Herr Wronsky (General Manager of Deutscher Aerolloyd, Berlin), Herr Gotthard Sachsenberg (General Manager of Europe-Union, Berlin), Herr Deutelmoser (Managing Director of Oesterreichische Luftverkehr A.G., Vienna), M. Dick Farman (Managing Director of Lignes Farman, Paris), Signor Morandi (Managing Director of the Ansaldo Co., Rome), Dr. Ignace Wygard (Managing Director of Polska Linga Lotznica, Warsaw).

These gentlemen are seen in the accompanying photograph in the order mentioned, reading from the left, the first four standing. Collectively the firms represented on the Committee are known as "The Big Nine" of European Civil Aviation.

THE TOKYO—LONDON FLIGHT.

The Japanese aviators who flew from Tokyo to London were entertained to dinner by the Air Ministry on Oct. 1[illegible] at the Garden Club, Wembley. Sir Samuel Hoare, Secretary



of State for Air, was present and among the guests were Mr. Yoshida, Japanese Chargé d'Affaires, the Duke of Sutherland and Lord Peel.

After dinner the party attended the Tattoo in the Stadium, where one hopes they acquired a proper respect for our Royal Air Force.

Vickers Hospitality.

On Oct. 14 Major Abé and Mr. Kawachi, were entertained



A LONG-DISTANCE GATHERING.—Heroes of the World's Longest Flights.—Mr. Stanley Cockerell (London to Central Africa, on a Vickers Vimy), Sir Arthur Whitten-Brown (Newfoundland to Ireland, on a Vimy), Major Aracena (Santiago, Chile to Rio, Brazil, on a De Havilland), Sir Quentin Brand (London to Cape Town, on a Vimy ending on a De Havilland), Flt. Lt. Plenderleith (England to the Behring Sea, on a Vulture), Major Abé (Tokyo to London, on a Breguet), Sir Sefton Brancker (London to Rangoon and back, on a De Havilland), and Mr. Kawachi (Tokyo to London, on a Breguet). All these distinguished aviators were present as the guests of Vickers Ltd. on Wednesday of last week.

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GLOSTER-NAPIER III.

THE GLOSTER-NAPIER III WILL REPRESENT GREAT BRITAIN IN THE INTERNATIONAL SEAPLANE RACE FOR THE SCHNEIDER CUP AT BALTIMORE, U.S.A., ON OCTOBER 24TH.

DERBYS, 1921-1922-1923.

IN 11 MINS. 34 SECS.

by Vickers Ltd. at the Hotel Cecil. The Chair was taken by Mr. Douglas Vickers, with whom were Sir Trevor Dawson, General Caddell, Captain Acland, Mr. Oliver Vickers, Mr. Stanley Cockerell and Mr. McNess of Vickers Ltd.

It was interesting to note that among the guests were Sir Arthur Whitten Brown and Sir Quentin Brand, the heroes of two of the greatest flights in the history of aviation, namely the first non-stop trans-Atlantic Flight, and the first flight from England to South Africa.

Major Aracena who was the pilot in the best flight ever made in South America, namely that from Santiago in Chile to Rio de Janeiro in Brazil by way of Buenos Aires in the Argentine, was also a guest.

Sir Sefton Brancker was there in his dual capacity as Director of Civil Aviation and as the leading figure in the flight from London to Rangoon and back. Among the other guests were Air Commodore Longmore, Mr. Bertram of the Air Ministry, Lt.-Col. Ivo Edwards and Major Halford.

Mr. Douglas Vickers, proposing "Our Guests," said that this was probably the World's record overland flight. He pointed out the advantages derived from these long-distance flights in knowledge of the design and construction of aeroplanes. Just as long-distance racing had contributed to the perfection of motor-cars he thought that long-distance flights would improve the design of aeroplanes. It was only by over-testing that weaknesses were discovered. This flight across Asia organised by *The Asahi* was akin to that which *The Times* had organised across Central Africa. He added that the Press could do much to keep aviation before the public and bring the aeroplane into use all over the World for air traffic.

Major Abé and Mr. Kawachi replied suitably.

Sir Sefton Brancker paid a tribute to the enterprise Vickers Ltd. had shown on behalf of British aviation; and Sir Trevor Dawson replied.

Before the lunch the Japanese aviators had visited the Vickers Works at Brooklands where they had made a tour of the shops and had seen exhibition flights by a Vickers Vixen two-seat fighter and a Vickers Viget light aeroplane.

THE BRISTOL CHERUB IN AMERICA.

On Oct. 12 the Powell Racer, a light aeroplane designed and constructed by Professor C. H. Powell of Detroit University won The "Scientific American" Light Aeroplane Speed and Efficiency Race at the New York Air Meeting. The machine, which has a span of 15½ feet and weighs 310 lbs. was fitted with a "Bristol" Cherub air-cooled engine and the speed recorded was 76.4 m.p.h.

The result of this race is exceptionally interesting owing to the fact that at the time of the race this was the only Cherub engine in U.S.A.

It may be pointed out that quite recently at the International Air Meeting at Munich the only Cherub-engined machine entered also gained First Award, whilst in every Meeting in which machines fitted with "Bristol" Cherub engines have participated they have gained first prizes.

THE LIGHT AEROPLANE CLUBS.

THE LONDON AEROPLANE CLUB.

During the week ending Oct. 17 the following members were under instruction:—L. J. C. Mitchell, G. H. Craig, Mrs. Elliott Lynn, Major K. M. Beaumont, E. A. Boyd, W. E. P. Johnstone, H. R. Thomas, S. O. Bradshaw, L. G. Pollard, A. L. Angus, N. H. Jones, J. Barros, A. P. Hunt E. Thomson, A. Lees.

On Thursday, Oct. 15, G. N. Warrick made the necessary flights to qualify him for his Royal Aero Club Aviator's Certificate. This is the first Certificate granted to a member who has received his flying instruction in the Light Aeroplane Clubs.

There were practically four blank days during the week on account of fog and rain. The total flying hours for the week were 10 hours 25 minutes. This was done on the one machine only. The machine damaged last week has now been repaired by the De Havilland Co. and was handed back to the Club on Saturday.

The following arrangements have been made for booking times for flying instruction:—

On and after Nov. 1 booking for flying instruction may be made for one hour flights.

The total time booked for any one week must not exceed two hours.

Bookings cannot be made for more than one week ahead.

Owing to the large demands for bookings by the present members and the somewhat long waiting list, it has been decided by the Committee not to accept any further members this year.

THE LANCASHIRE AERO CLUB.

The Lancashire Aero Club is placed rather differently from the other Clubs at present as it has no paid Instructor and members cannot drop down to the Aerodrome for flying any time they like. Messrs. J. Cantrill and J. Scholes are giving their services as Instructors, and during the Winter members are only flying on Saturdays, Sundays, and Wednesday afternoons. Until the Spring therefore and the long evenings come it is not expected to average long hours in the air.

On Wednesday, Oct. 14, Mr. Scholes took G-EBLR into the air at 2.40 p.m. and after a brief test flight took a pupil for a trip of 40 mins. During this flight a height of 6,200 feet was attained, and the descent from that height was made with the engine stopped. It was a bitterly cold day and Mr. Scholes and the pupil were somewhat chilled on landing having flown without gloves or leather coats. After efforts had been made to warm them Mr. Scholes took up S. Crabtree for a 30 mins. instruction flight. Mr. Crabtree has now done an hour and a-half and is making good progress.

John Leeming then made a solo flight of 15 mins. and at a height of 2,000 feet did what he believed to be two "stalled turns." The Instructor on the ground had a very different name for them.

Mark Lacayo then did two solo flights of 15 mins. each. Mr. Lacayo is now doing some very pretty flying and is ready to take his Certificate any time. His landings are especially good.

Saturday, Oct. 17th, it rained hard the whole day. A few hopeful souls waited about the shed but about 16 hrs. decided it was impossible to fly and departed sadly.

On Sunday morning Mr. Cantrill on G-EBLR after a short test flight took W. Colley up for 25 mins. instruction, and then A. L. Goodyear for 35 mins. After lunch Mr. Cantrill with A. Wilkinson as pupil did 35 mins. practising landings. Mr. Wilkinson is almost ready to go solo and will do so as soon as weather permits.

Mr. Scholes then took H. Stern up in G-EBLR and after they had been up a short time it was noticed the engine was giving trouble, and the machine was forced to land; it reached the aerodrome safely and the trouble proved to be the usual valve seating in the cylinder head. Flying therefore finished for the day.

Last Sunday G-EBLV had a forced landing in the aerodrome with cylinder head trouble and is still out of action and this Sunday G-EBLR has exactly the same trouble. It is hoped that "LV" will be ready for Wednesday afternoon flying the new head having arrived on Monday, but "LR" will be held up until the A.D.C. send another new cylinder head.

A few members tried out the L-P-W Monoplane, but after two trips the L-P-W Mag decided to follow the example of "LV" and "LR" and so "taxy" work finished also.

THE NEWCASTLE-UPON-TYNE AERO CLUB.

Owing to the illness of the Instructor, Mr. G. F. E. Harrison, there has been no instructional flying at all during the past week.

Mr. Baxter Ellis has, however, managed to get in four hours' flying with members of the Club as passengers, including the following:—Mr. N. S. Tood, Mr. W. F. MacKay Mr. P. F. Heppell, Mr. L. De Loriol.

Mr. O. E. Simmonds, M.A., A.F.R.Ae.S., visited the aerodrome on Sunday, previous to delivering a very interesting lecture on "The Wonders of Flying" at the Stoll Theatre in the evening. A large number of the members of the Club attended and much appreciated the lecture.



CLUB EQUIPMENT.—The Newcastle Light Aeroplane Club's De Havilland Moths (A.D.C. Cirrus engines). The photograph was taken by Mr. Brian Dodds, Treasurer of the Club, whom many will remember as being interested in the Flanders Monoplanes at Brooklands in 1911 and afterwards as serving in the R.N.V.R. and R.A.F.

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AIR SURVEYS IN BURMA.

The paper by Major C. K. Cochran-Patrick, D.S.O., M.C., with the above title, which was read before the Royal Aeronautical Society on Thursday, Oct. 15, naturally covered a good deal of ground which has already been covered by the official report on the Irrawaddy Delta survey issued by the Indian Government, and therefore familiar to readers of this paper. But it also gives a good deal of information which is not already public property, both in regard to other work than that particular survey, and in regard to details of the actual operations and equipment.

The equipment employed on these surveys was very largely of an improvised nature, and the success of the work is largely to be traced to the skill and experience of the personnel, notably Major Patrick himself, who piloted, and Flying Officer J. Durward, who was lent to Mr. Kemp by the R.A.F., India. Both these gentlemen possessed considerable experience of air survey, and it may be gathered from the paper that this prior experience enabled them to modify and adapt the aircraft and instruments available before beginning the actual photography, with eminently successful results. Work was actually started after only two test flights to try out the various modifications made to the equipment after Major Patrick's arrival in Burma.

Equipment.

The machines used were standard D.H.9s (Puma engines) fitted with floats. To improve the view holes were cut in both lower wings. An aperiodic compass and an aneroid divided to 100 ft. instead of the usual 200 ft. were used in place of the standard instruments of this type. An Aldis sight and a negative lens with an adjustable drift wire were fitted, but the only sight used in practice was formed by the edge of one float. It so happened that the line between the top of the pilot's cockpit and the bottom inner edge of the float gave the correct angle for a 30 per cent. overlap with the lens and plate used. The pilot was provided with a stop-watch and a white disc which moved whenever an exposure was made.

The cameras used were the standard L.B. type with Ross 6 inch lens. Two big carpenter's levels were attached at right angles to facilitate levelling. The standard camera mounting was found to be too big and clumsy and was accordingly cut down and fitted with a rapid adjustment for fore and aft as well as lateral inclination. Originally the observer worked looking backwards, but this was later altered so that he faced forward. A stop-watch was fitted in an accessible place, and on either side of the observer's cockpit a special sight of Flg. Off. Durward's own design, adjustable for varying focal length of lens and amount of overlap, was fitted.

How the Delta was Photographed.

The method of operation employed was as follows : Leaving Rangoon as early as possible, an hour's flight brought the machine to the working height (10,000 ft.) and over the scene of operations. Signalling to the observer the pilot flew level in any direction until the latter had adjusted camera and sights by their levels. The pilot then flew up to the position for the first strip to be photographed and started to fly along it at what he judged to be the correct drift angle—a process which was found to be surprisingly accurate after a little practice. Looking ahead along the line, the pilot would note one or two points to be passed over and the final point on which to end the line. The machine was then held steady until the exposure indicator moved, showing that the machine was over the start of the line. The pilot immediately started his stop-watch and took a sight past his float and memorised points on the side of the line (to be flown over on the next strip). He then awaited the next exposure on the exposure indicator—which gave the time interval between exposures for that strip.

Knowing this interval it was possible to tell when an exposure was due, and when therefore the machine must be accurately straight and level. The pilot therefore could arrange to make any necessary observations and corrections to course, starting immediately after an exposure and have everything steady before the next was due.

At the end of one strip—a matter of ten or twelve miles—a point was memorised on the ground past the overlap sight (edge of float) on the side for the next strip. The machine was then turned as quickly as possible and brought back to sight this point (this time on the opposite side of the machine). A straight course was then held by judgment till the compass had settled down, and the machine was then taken over the second strip by similar methods.

This method of working was adopted mainly because the variable winds encountered rendered the taking of drift sights in advance more or less useless. Moreover, the problem is not one for a drift sight—a line sight is necessary. To carry out this method a machine with an absolutely clear view is essential. In the ordinary tractor—unless large holes are cut in the wings—the pilot has to rely upon the observer to direct him. Though excellent work has been done by crews working in co-operation Major Patrick believes that the principle is wrong. The observer has plenty to do looking after camera, and the pilot should look after course and altitu of the machine. The work can be done from a tractor, the author likens the process to attempting to drive a into a garage blindfolded under the direction of a frie The view from the front seat of a Maurice Farman Shortho is what is needed, and, given this view, a reasonable p formance, and a really automatic camera, the work co be done by the pilot single handed—thus reducing the c appreciably. [The machine could undoubtedly be produ without difficulty—as to the camera one is not qualified speak.—Ed.]

The Irrawaddy Delta area (approximately 1,400 sq. mile was covered in 17½ flights (43 hours 15 mins. of photograph and gaps were filled and tie lines taken in 6½ further flig (17 hours 50 mins. photography).

An investigation of the errors of individual negati showed that 55 per cent. were tilted less than 1°, 35 per ce between 1° and 2°, and 7 per cent. between 2° and 3°. O plate only had a tilt of over 5 per cent. The maximu difference in height from the mean in any one strip was 200 Differences of over 50 ft. were exceptional, and only occur in bumpy weather.

The maximum error in position of any point on the co pleted survey has been estimated as not exceeding five chai [Which sounds a lot more than it really is—it is 1-16th in. the map scale of 3 in. to the mile.—Ed.]

Sundry Small Surveys.

Following this main survey, a mosaic was prepared for t Admiralty, showing country surrounding some of their lo works. Here detail was all-important, and exact scale i material. Another mosaic was made of a timber dump b longing to the Bombay-Burma Trading Co. This was requir to study the process of silt deposit on the river bank, and approximate scale only was needed. This was secured flying to Rangoon after completing photography, and at t same aneroid height, and taking photographs there of poin whose position was known.

The next item was the production of a scaled and rectifi mosaic of Rangoon and the surrounding country, at 12 inch to the mile. The area was some 70 sq. miles, covered by series of photographs taken from 8,000 ft. with a 6 in. le over the town, and a collection of plates taken from 9,000 with a 10 in. lens over the rest of the area.

A ground control was provided by the Survey Staff of t Rangoon Development Trust. Neither time nor money w available for fixing a special control for the purpose, and u was made of points fixed on existing maps. The town prop had been mapped on a scale of 100 ft. to the inch, a this map was believed to be correct. The surrounding count had scattered fixed points used for the start of local survey

Troubles with Faulty Ground Control.

When the attempt was made to fit the photographs to t control points outside the town area, however, it was final found impossible to make anything fit. Finally suspicion fe upon the ground control, particularly as it was found th assuming no tilt the photographs corrected for scale matche up and fitted. About this time Major Patrick heard of a loc survey carried out over the area in question, by the Po Commissioners, and found that the maximum error of pos tion of a straight mosaic from points fixed by this survey wa ⅛ in. Various checks were applied to the original groun control, and, finally, except for the town proper and certai points fixed by triangulation in 1895, any control points whic did not agree with the photographs were discarded, and onl 40 of the 98 control points originally given were used. Th very considerable time wasted in the effort to square th photographs with the original control brought home forcibl the importance of having a few control points of very hig accuracy rather than a number of inferior points.

Following the Rangoon survey, a series of photographs the Yenanyaung oil fields were made for the Burma Oil C The Survey of India had undertaken a 24 in. per mile survey and the photographs were required to fill in detail on the map The area was only 16 sq miles, and it was hoped to fly u and take them in one flight. Clouds interfered, and a wee was spent waiting for weather. Photographs were then take from 7,000 ft. with a 10 inch lens and were developed on th spot to make certain that the area had been covered befor flying back. A high order of accuracy was necessary, an as the area consisted of deep ravines and ridges rangin 800 ft. in height, straight mosaicing was impossible. Th Survey of India therefore covered the area by triangulatio and fixed a large number of points. At least four points pe print were thus given. Prints were printed flat, and scale to the mean scale given by all points on that print. Owin to the large overlap given only the centre of each prin was used, and detail on the plot of the triangulation was fille in from the prints by measurement from the nearest fixe point. The errors introduced were less than the accurac

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required—which was nine inches in actual position of any point on the ground.

15,000 sq. Miles of Forest Stock Survey.

On the return from this expedition all hands set to work to prepare for the work of a forest stock survey of 1,500 sq. miles, in Tenasserim, South Burma. This area comprised a long narrow strip, bounded by coast on the west, and the hills of the Siamese border on the east, stretching from Heinze Bay to Victoria Point (about 350 miles). The area includes only three towns, connected by infrequent steamer services, owns a few local boat services, but otherwise is devoid of any regular communications. It was obvious that the expedition would have to work from its own bases and be entirely self-supporting.

The expedition was equipped with a naval pinnace fitted with a paraffin engine, capable of sleeping her native crew and two Europeans comfortably, or four Europeans, at a pinch. The contract provided for a definite number of flying hours and for the photography of an area not exceeding 600 square miles near Heinze Bay. The flying hours were to be occupied in carrying a Forest Officer over such areas as required to make a forest stock map by sketching timber varieties into existing maps.

The forest officer had the option of converting square miles of photography into flying hours at a prearranged rate, if after trying both he considered that sketching gave more satisfactory results.

The forest officers concerned, Messrs. C. W. Scott and C. R Robbins, spent a month or two examining small portions of the area on foot, to get a preliminary idea of the types of timber to be expected, and joined the rest of the party at Heinze Bay, the first depot. The complete party consisted of Major Patrick and the two Forest Officers, who lived ashore, in tents, of Mr. Bishop, foreman fitter, captain and navigator of the launch, Mr. Andrews, photographer, who both lived on the launch, one native aero-engine fitter, who acted as engineer to the launch, and various native crew and boys, who were housed as most convenient. Two native photographic assistants were taken to the first base.

After photographing two areas of 100 sq. miles each, and in making the first sketching flights, it was decided to transfer all the remaining photographs to sketching as it was found that adequate accuracy could be attained in this way.

Sketching v. Photography.

The problem of carrying out this work involves questions of safety, visibility of detail, and the possibility of map reading and sketching. In all but ideal country safety calls for a flight at the maximum possible height. The lower one flies the more the observer can see, but there is a lower limit to this, as at very low altitudes the tendency is to lose sight of the wood for the trees. The factor of map reading and sketching is actually the governing factor. The larger the scale of a map the more difficult it is to read in the air, and the higher and slower one flies the easier it is to read any map in the air. For a given scale of map there is a minimum height at which the observer can read the map, and this minimum is further increased if he has to find time to sketch detail on the map.

Eight thousand to 10,000 feet was found to be the m suitable height. It was the cruising ceiling of the machi and therefore gave the maximum safety. Mr. Robbins fou that all necessary detail was visible at that height, but t there was no temptation to try and put in details too significant to be relevant. As regards map reading it found desirable to fly in straight lines, without circli Working with 1 in. map at 80 m.p.h. at 10,000 ft., the server could work on both sides of the machine on virg forest, where types stretched over big areas with little var tion. Where cultivation had occurred, or types were mu mixed, the observer worked on one side only of the machi Circling was rarely necessary to fill in the detail.

The method of covering the area was to make a straig flight out, and a series of short strips at right angles this flight, working back to the base and covering a fa shaped area. Successive sections were joined together, w the base as a fan handle.

The whole area covered in this expedition was 15,718 miles, covered in 57 hours 14 mins. reconnaissance—or 265 miles per hour. Additional check flights and tests involv a further 8 hours 25 mins. This very high rate of work w rendered possible by the fact that Mr. Robbins was not o a very efficient forest officer, but had proved himself duri the war to be one of the best of artillery observation pilo

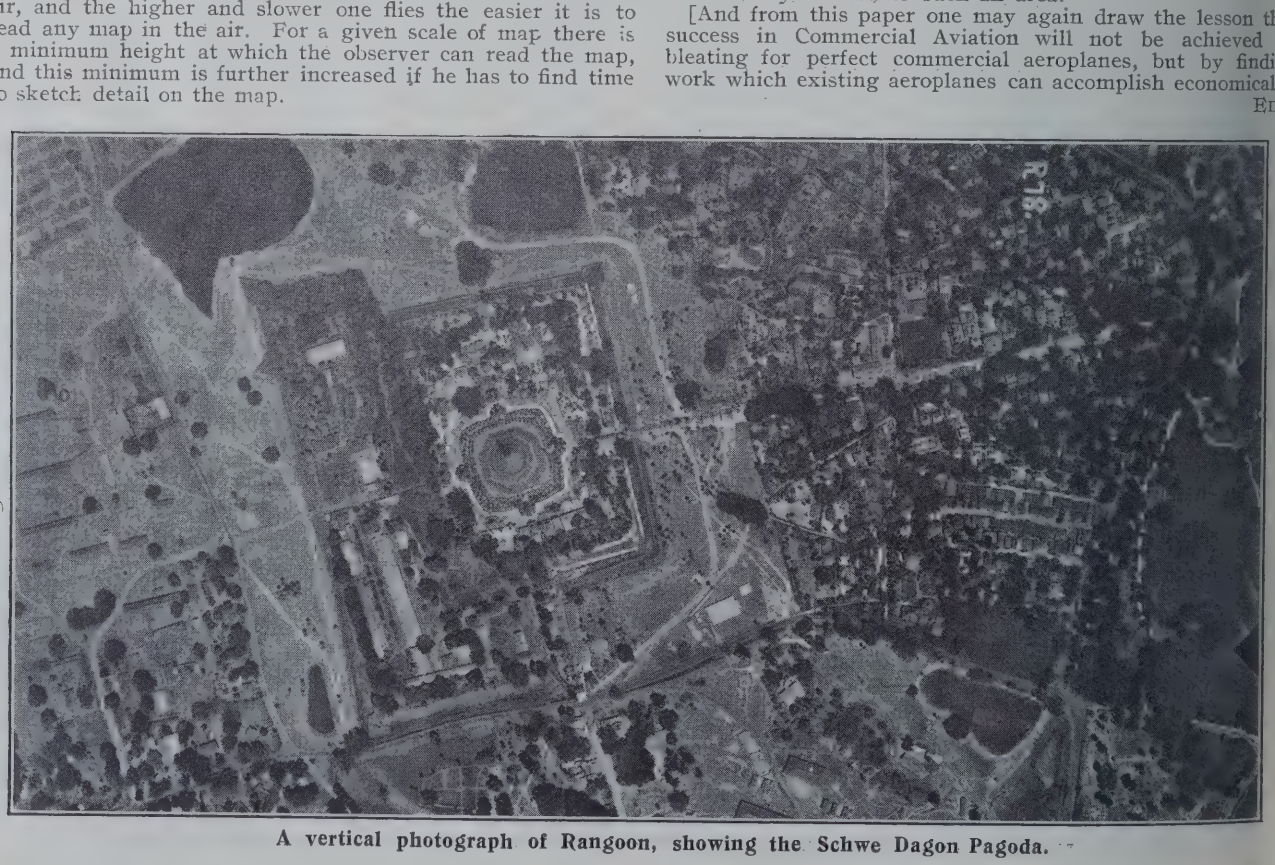
The Tail of a Cyclone.

The expedition was not without its incidents. An engi crankcase cracked, and Major Patrick and the photograph removed it by slinging it from a convenient mangrove t beneath which the machine could be floated at high tid At one period bad thunderstorms were encountered eve evening. The tail of a cyclone on the Madras coast caug the machine when flying north with the heaviest load it h ever carried, and produced a 40° drift. On landing in sheltered anchorage a terrific current was running with stro wind at right angles The current had carried the moori buoy under water, and the anchor carried on the machi dragged at once. Local dug-outs edged the machine in a firm sandbank, where the anchor held for an hour, wh the rope broke. The machine was rescued and manhandl to the mooring buoy, which had reappeared. The machi dragged its 80-lb anchor four times after this, and on t morning of the third day the last anchor rope—a four-in coir—went. The machine was within a couple of hundr yards of six-foot breakers when a big sailing boat manag to get a tow line to her and towed her to safety. The loc village was turned out, and the machine was dragged u planks to above high water.

The machine returned to Rangoon three months and o day after it had left for the first base. In the opinion of e perienced forest officers, the work completed in those thr months would have taken 20 years if carried out by the fore staff usually allotted to such an area.

[And from this paper one may again draw the lesson th success in Commercial Aviation will not be achieved b bleating for perfect commercial aeroplanes, but by findin work which existing aeroplanes can accomplish economicall

Ed.



A vertical photograph of Rangoon, showing the Schwe Dagon Pagoda.

Blackburn
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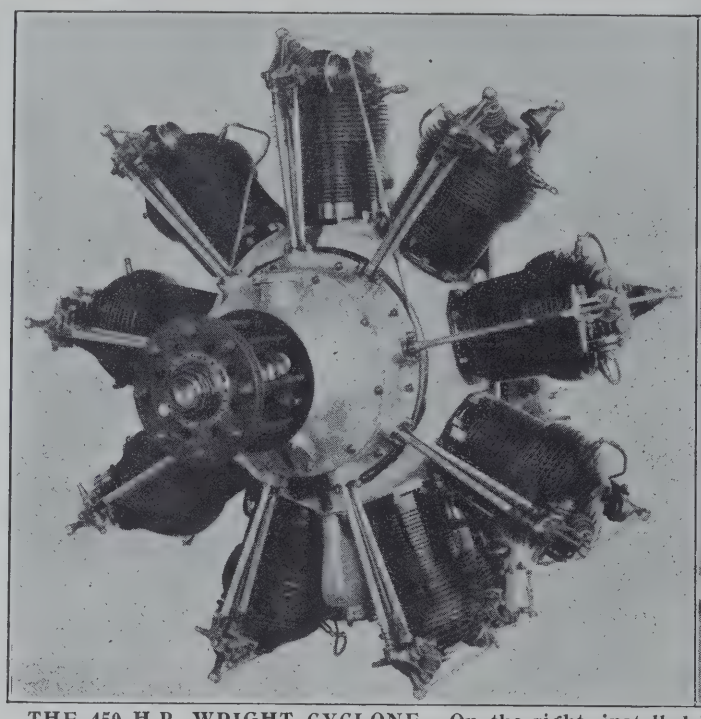
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THE WRIGHT CYCLONE RADIAL ENGINE.





THE 450 H.P. WRIGHT CYCLONE.—On the right, installed in a Douglas D.T.6 Torpedo and Bombing machine.

The Wright Cyclone, or P.1, is a nine-cylinder, air-cooled, radial engine, rated at 450 h.p., which has been developed by the Wright Aeronautical Corporation to meet the requirements of the U.S. Air Services. This engine has been in the experimental stage for some considerable period, but has now passed its 50-hours' test, and has been successfully tried out in the air, and a production order for the U.S. Navy has been received by the constructors.

The outstanding feature of this engine is the very restricted over-all diameter, which is given as 47¼ inches—a feature which is important as affecting the air resistance involved in fitting it. Two factors contribute to this reduction in diameter, one, the use of cylinders of relatively large bore and restricted stroke (6 in. × 6½ in.), and the second the arrangement of the valve gear.

As can be seen in the photographs which are here reproduced, the two valves are set at a very large angle (about 45° each) to the cylinder axis, so that the ends of the valve stems project little above the cylinder heads. The valve rockers are inclined, and are carried in front of and behind the cylinders instead of on top, and the inlet valve—which is at the back of the cylinders—is operated by a horizontal pull-rod across the cylinder head, through a bell crank in front of the cylinder. The rocker-arm pivots in each case are below the cylinder top. The result is a great reduction in the projection of the valve gear above the cylinder he and a much better cooling at the head itself, as a resu of the absence of rocker brackets and such like impedimen from the crown.

No detailed description of the inward construction of th engine is available. It is known to have steel cylinders wi aluminium alloy heads, and it is said to weigh 840 lbs.

For air tests the engine has been fitted to a Douglas D.T. a Navy torpedo, bombing and long-range reconnaissan machine—a near relative of the famous World Cruisers which is usually fitted with the Liberty engine of 400 h. A total saving of 286 lbs. in weight resulted from the subst tution of the Cyclone, of 50 h.p. greater output. Performan tests gave results better than are accounted for by the d crease of weight and increase of power, which are attribut to the cleaner lines of the nose with a radial engine. photograph showing the installation certainly suggests th the resistance should not be worse than with the very amp nose radiators usually fitted to this type.

SPECIFICATION.

Bore	6 in. (152.4 m./m.)
Stroke	6.5 in. (179.6 m./m.)
Rated output	450 b.h.p., 1,800 r.p.m.
Weight	840 lbs.

A ROUMANIAN FLYING BOAT.

A flying boat, built to the designs of M. Stoïka, has just been completed in Roumania. It was built in the short time of 2½ months of entirely Roumanian material.

The hull is straight-sided, has one step, and tapers to a point aft.

The wing cellule is of sesquiplan arrangement. The top plane is flat, but has a slight sweep back. The bottom plane, which is attached just above the deck of the hull, has about half the area of the top plane. Interplane struts consist of one pair of inwardly-inclined parallel struts, on either side of the hull, and from the bases of the front struts only a pair of struts in the form of a "Vee" run out at an angle of 45° to the overhang of the top plane.

The engine, a 220 h.p. Heiro, is mounted between the planes on two sets of struts in the form of an "N," and is well cowled in. The radiator is in front of the engine, which drives a pusher airscrew.

The tail unit is mounted above the hull on a pyramid o struts, and consists of a tail-plane elevator fin and unbalance rudder. Ailerons are fitted to the top plane only and con shaped wing-tip floats are carried under bottom plan under the point of attachment of the interplane struts.

The pilot's cockpit is situated just in advance of the botto plane and has accommodation for two sitting side by side.

In the extreme nose is an observer's cockpit.

The specification of the Stoïka flying boat is as follows:- Span, 15.9 m. (52 ft. 3 in.); length, 10.4 m. (34 ft. 2 in.); weigh 1,800 kgs. (3,960 lbs.); speed, 160 km.p.h. (100 m.p.h.) ceiling, 4,000 m. (13,120 ft.); petrol capacity, 8 hrs.

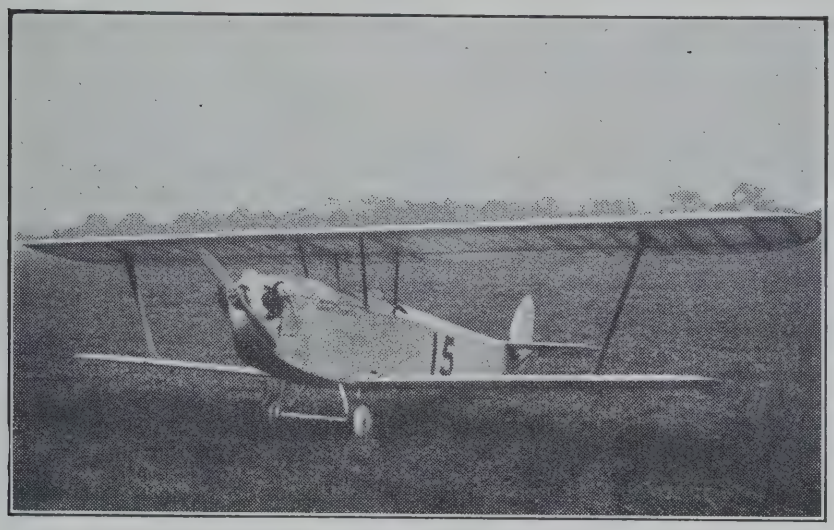
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COMMERCIAL AERONAUTICS.

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 18; Tuesday, 16; Wednesday, 20; Thursday, 16; Friday, 14; Saturday, 10; Sunday, 2.

IMPERIAL AIRWAYS LTD.:—
London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 55, passengers 204, freight 18 tons.

AIR UNION:
Paris—London: Machines 28, passengers 110, freight 9 tons.

K.L.M.:
Amsterdam—Rotterdam—London: Machines 11, passengers 32, freight 1½ tons.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES:

DE HAVILLAND HIRE:
London—St. Inglevert: Machines 2, passengers 2.

Total number of trips by British machines: 57, carrying 206 passengers. Foreign machines: 39, carrying 142 passengers.

Comparative Figures:

For week ending Oct. 18:
Machines, 96; Passengers, 346; Crews, 122; Total personnel, 468.

Corresponding week, 1924:
Machines, 86; Passengers, 370; Crews, 114; Total personnel, 484.

Corresponding week, 1923:
Machines, 84; Passengers, 232; Crews, 131; Total personnel, 363.

Corresponding week, 1922:
Machines, 89; Passengers, 261; Crews, 151; Total personnel, 412.

Corresponding week, 1921:
Machines, 66; Passengers, 226; Crews, 87; Total personnel, 313.

Corresponding week, 1920:
Machines, 96; Passengers, 160; Crews, 104; Total personnel, 264.

Croydon Notes.

On Monday of this week the Handley Page Hampstead was delivered to Imperial Airways Ltd. Mr. Hinchliffe flew it over to Croydon where it was used as a background for some camera studies of Sir Eric Geddes and part of Mr. Handley Page. After which it embarked Mr. Handley Page, Mr. Savage, Major C. C. Turner and a few more pillars of aviation and flew over to Farnborough to watch the autogirations of Mr. Frank Courtney.

By the way would it not be a wonderful sight to see a machine of the Hampstead size autogirised? One is inclined to think that people would rush home and promise to be better girls and boys in the future.

Another item of interest occurred on Monday when the Japanese aviators who flew here from Tokyo departed for home. They have flown to Brussels and will go thence to Rome.

Progress is being made with the reorganisation of the Aerodrome. Foundations for the new buildings are being laid down over at the opposite side of the aerodrome fronting on the new Brighton road, and adjacent to the buildings of A.D.C. Aircraft Ltd. There is no definite date as to when these will be completed but the move should be made some time next year unless of course there is much hindrance from official sources.

If the Air Ministry's technical people have anything to do with the buildings every stick and brick will have to be tested to destruction at Farnborough, and altered so that on a production basis the price will be prohibitive. After that the bricks and sticks severally and in complete form will be placed on the Secret list. After a lapse of several years they will be placed on the "Part publication" list, when exterior views showing no details will be allowed to be published.

Finally, when Croydon Aerodrome is scrapped and we all ought to girate from Sir Sefton Brancker's aerodrome on the roof of Victoria Station the whole scheme will be placed on the open list.

Incidentally one has been paid a great compliment by the Air Ministry in that certain designers have been officia told that one is a "dangerous person to talk to." P sumably the Air Ministry has decided that one has sufficie intelligence to notice their precious secrets and to grasp t salient points of these and to use them in an intelligent wa One wishes one could pay the same compliment to cert Air Ministry officials.

Mr. Wolley Dod, the well-known pilot of Imperial A ways Ltd., is being married on Wednesday of next wee Everyone will wish him the very best luck, and, as an o married man, one can congratulate him on the step he h taken and can reassure him that it is nothing like as b as it would seem from the daily news-sheets.—G. D.

An Air Line Accident.

On Friday, Oct. 16, a Goliath belonging to the French A Union which was flying from Le Bourgêt to Croydon r into a tree while attempting to make a forced landing in dense fog at Wadhurst near Tunbridge Wells. One passe ger, Miss Kate Burke, of New York, was killed and th of the other seven passengers were severely injured. T pilot was M. Thierry who escaped without injury.

Clearing the Air.

One of the outstanding characteristics of the K.L.M. A Line, more correctly called the Koninklijke Luchtva Maatschappij voor Nederland en Kolonien, has always be its enterprise. While we were still pushing passengers acr the Channel in aeroplanes with open cockpits or sligh transformed war machines with lids for the cockpits, t K.L.M. people, thanks to the foresight and courage of th chief, Mr. Plesman, had already procured from Mr. Antho Fokker machines with really comfortable cabins. And the demands for comfort and speed continued so the K.L.M policy has kept pace.

The latest information is that the K.L.M. firm are offeri for sale their whole fleet of single-engined Fokker machin as in the opinion of the directors these are becoming o of date for use on the big international air routes. T K.L.M. intends in future to use aircraft of still more prac cable design and requiring the minimum of maintenance.

It is an interesting phenomenon and a happy omen for t progress of air line work, besides proving the rapid develo ment of air traffic and of aircraft design, that a company li the K.L.M. should be trying to sell a whole fleet of ae planes, many of which have not even had one year of servi in order to reorganise the service with an entirely new syste based on six years' experience.

The machines for sale are Fokker F.IIs and Fokker F.I with Puma engines, an F.III with a Jupiter engine and F.VII with a Jupiter, and some F.VIIs with Rolls-Royc They are all in excellent condition and quite suitable f use on small lines where traffic is not yet intensely develop and where the operating companies prefer to invest a co paratively small amount of capital at the start. The reco of regularity and safety which the K.L.M. has attained wi these machines is sufficient guarantee that the purchasers w get good service out of them, if they are maintained wi K.L.M. efficiency.

There will be much interest in learning what type machines and engines the K.L.M. intend to use on their r organised service.

Mr. Harold Perrin.

Everyone will be sorry to hear that Mr. Harold Perri the energetic secretary of the Royal Aero Club, met with serious accident on Sunday and broke his arm in two place He was playing golf and fell on the slippery turf. He is present confined to his bed in considerable pain, but he sa that he is repairable and hopes to be ready for use aga by the end of the week.

On behalf of all readers of this paper one wishes him speedy recovery.

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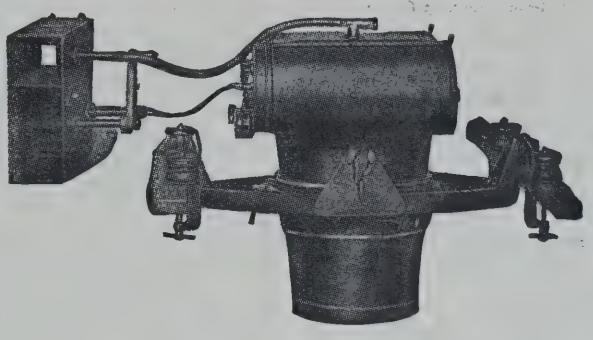
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SIR SEFTON BRANCKER ON THE EAST.

The following interview with Sir Sefton Brancker by their Baghdad Correspondent, is taken from *The Times of Mesopotamia* of Sept. 13 :—

Sir Sefton Brancker stated that the starting place of the new service will probably be Al Maza, which is near Heliopolis. Among those whom he interviewed in Egypt were King Fuad and the acting Premier, who were enthusiastic on the subject of Egypt's first air port, and who expressed their determination to do everything in their power to help the project. Their attitude, indeed, was similar to the point of view expressed in other quarters in Egypt, where the value of a great improvement in communications with India was quickly recognised. As an earnest of their sincerity it was being proposed that the cost of constructing and equipping the air port at Al Maza should be borne by Egypt.

The attitude of the Cairo authorities was typical of the reception the air mail scheme had had in other countries. Palestine was anxious to help to the best of its ability, and the Government of Iraq by building a police post at the Rutba Wells (half-way on the existing air route between Baghdad and Amman) were making a valuable contribution to the safety of the route, although their original motive might have been to protect motor traffic across the desert and not merely to provide an admirable halting place for the air service.

Sir Sefton commented with satisfaction on the readiness to co-operate which he had experienced everywhere in the Near East, and remarked that the only curb to the desire to help was the prevailing scarcity of funds.

As far as Baghdad was concerned, it was proposed to build the air port on the western side of the river, on the site of the aerodrome formerly used by the Royal Air Force. It was considered that with the eventual development of Baghdad the west side should be the more convenient for passengers and mails, and it was thought that in the wet weather this old aerodrome would offer better landing facilities than those available at Hinaidi.

As regards his own plans for the next few weeks, Sir Sefton Brancker will accompany Col. Birchall and Lieut.-Col. Minchin to Bushire, but whereas they will fly from there to India he will return to Baghdad and leave for Teheran next Monday.

He will enter into negotiations with the Persian Government concerning the Persian Gulf section of the route, which presents some difficulties from an aviator's point of view. There will probably be well-equipped air stations at Basrah, Bushire, and Jask, with about six other landing places where spare fuel will be available in an emergency.

Sir Sefton said he had no doubt that the Persian Government, with the progressive spirit which it had displayed in recent years, would realise the immense advantages which direct air communication with India and Egypt would bestow on Persia.

Sir Sefton Brancker had some interesting things to say about the working of Imperial Airways Ltd., which would be granted a subsidy of £100,000 annually for five years for running the service. As few restrictions as possible would be imposed on the company, which would be encouraged to develop the air line on commercial lines; the Air Ministry would satisfy itself, however, that all recognised landing places were suitable for the purpose for which they were intended.

No restriction would be placed on the company so far as passenger rates were concerned, but it was already obvious that Imperial Airways would have a difficult task in keeping passenger fares down to a level which would be economic from the travelling public's point of view, and which would at the same time cover the expenses, admittedly very heavy, of the undertaking. Some restriction was imposed as regards the mails; the surcharge on letters from London to Baghdad by the new air route would be the same as it is to-day for the Overland Mail.

The first commercial air mail will probably leave Cairo for Karachi, on Oct. 26 next year, but there may be an interim service from Cairo to Baghdad by next March. There is little immediate hope of the air service being continued from Cairo to London.

Earlier developments will probably be from Karachi across India to Burma, and from Burma to Singapore.

Another of Sir Sefton Brancker's ambitions is an air mail service from Egypt to Central and South Africa. If he can return to England in time he expects to accompany Mr. Alan Cobham in his forthcoming London to Capetown experimental flight.

THE CAIRO—KARACHI ROUTE.

The Times correspondent in a message from Teheran on Oct. 17 states :—

The Government has issued the following *communiqué* in regard to the British air route to India :—

Persia, being a party to the International Convention of 1919 for the regulation of aerial services, and judging the present opportune for a great international line to link up with the existing commercial air lines, designates the southern Gulf route for the purpose. Negotiations with Air Vice-Marshal Sir Sefton Brancker have terminated favourably and the results will shortly be presented for the approval of the Mejliss.

BEARING ON BEARINGS.

In a recent paragraph referring to a leaflet entitled "Hints on Lining Bearings" produced by the Hoyt Metal Company of Great Britain, Ltd., of Deodar Road, Putney, S.W.15, the writer used the phrase "this work will doubtless be supplied readily to any responsible inquirers." This phrase was intended to relieve the firm of the trouble and expense of sending their leaflet to mere idle inquirers. However, the Hoyt Metal Company feel that the phrase may tend to frighten away the average mechanic who is interested in his job in that it may make him think that "responsible inquirers" are only the heads of firms and so forth.

As a matter of fact the firm invite all ranks in the Aircraft Industry and in the R.A.F. who are interested in the subject of bearings, to write for copies of the booklet. The regard it as beneficial to the industry as a whole that the booklets should be as widely distributed as possible.

They wish it to be understood clearly that they will glad send the booklet to anyone interested and to assure such pe sons that they will not be bothered to purchase anythir nor will they receive follow-up letters or anything of th sort. As to the booklet itself, the firm remark that whi they may be excused for putting some advertisement matt into it they aimed rather to produce a practical work on t subject of white-metalling bearings than an advertisemer

This was certainly a wise policy in that the better a ma understands his work the more keen he is on having the be material with which to do his job. And therefore the ma who knows most about bearing metals is the one who is t more likely to want Hoyt Anti-Friction Metals.

PERSONAL NOTICES.

Deaths.

BALLANTYNE.—At Wilton, Nr. Salisbury, on Oct. 16, as the resu of a flying accident, John Alexander Ballantyne, Plt. Off., No. (Army Co-operation) Sqdn., R.A.F.

Mr. Ballantyne joined the R.A.F. with a short service commissi in July, 1924. After a course at No. 2 F.T.S. he was posted to No. Sqdn. in August of this year.

BRANCH.—At Wilton, Nr. Salisbury, on Oct. 16, as the result a flying accident, John Stroyan Branch, Plt. Off., School of Arm Co-operation, R.A.F.

Mr. Branch entered the R.A.F. with a short service commission September, 1923. After a course at No. 5 F.T.S. he was attach to No. 2 F.T.S in July, 1924. He was posted to the School of Arm Co-operation, Old Sarum, in June or this year.

GRAHAM.—In Iraq, on Oct. 18, as the result of a flying accide on Oct. 13, Sjt. Thomas Alexander Graham, No. 8 (Bombing) Sqdr R.A.F.

McHARDY.—On Oct, 14, at Hayling Island, Graham Goodnou McHardy, Capt., R.A.F. (retired), son of the late Capt. Hard McHardy, R.N.

Forthcoming Marriages.

PARKER—RACKHAM.—The engagement is announced betwe Flt. Lt. Vivian Steel Parker, R.A.F., only son of the late Mr. Vivi Parker and Mrs. O. Parker, of 192, Marylebone Road, W.1, Frieda Mary, only daughter of Mr. and Mrs. J. J. Rackham, Halstow, Bickley, Kent.

STEVENS—GATES.—The engagement is announced between Flt. Alick Charles Stevens, R.A.F., only son of Mr. and Mrs. C. E. Stevens, of Jersey, C.I., and Beryl, youngest daughter of Mr. a Mrs. B. J. Gates, of Wing Park, Wing, Bucks.

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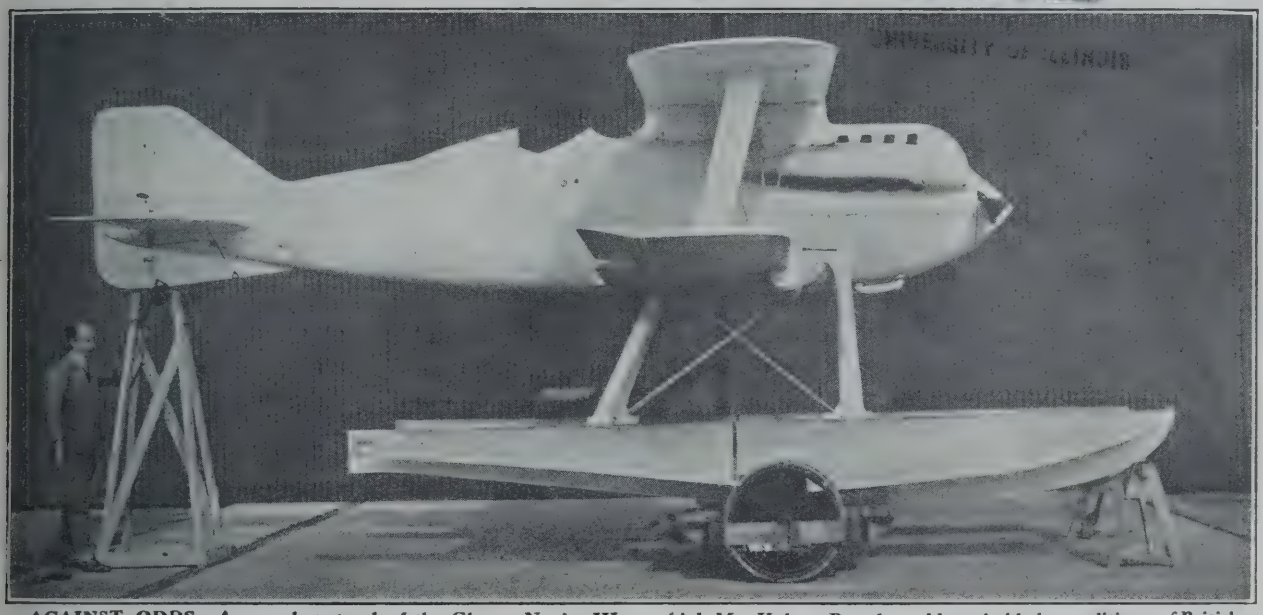
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THE UNIVERSITY OF ILLINOIS NOV. 17 1925

"ALL THAT WAS LEFT OF THEM."



AGAINST ODDS.—A new photograph of the Gloster-Napier III on which Mr. Hubert Broad so ably upheld the traditions of British Aviation in the contest for the Schneider Trophy at Baltimore. The Supermarine-Napier S.4, and the second Gloster III were wrecked in the eliminating tests, so Mr. Broad fought a lone hand.



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ON THE PSYCHOLOGICAL MOMENT.

At this time of writing the fate of the Schneider Trophy is ill to be decided. The contest which was to have been flown ı Saturday has been postponed owing to wind and rain, and ıe flying on Monday has not yet been done. The Super-arine-Napier S.4 and the second Gloster III have been recked and our chances of winning are thereby the less. he Supermarine was acknowledged to be some ten miles an ur faster than the Gloster-Napier IIIs though they appear be about as fast as the American machines.

Everybody's sympathy will go out to the Supermarine firm, ıd Mr. Biard the pilot and to the Gloucestershire Company ıd Mr. Hinkler who have seen their chance of International me vanish after having expended so much labour and money a sporting effort to bring the Schneider Trophy back to ngland.

Wing-Flutter.

We have yet to learn the cause of the Supermarine's acci-ıt. The report of a reliable eye-witness, *The Times'* own rrespondent on the pier at Bay Shore Park, says that the ings fluttered and put the machine out of control. This ems possible, even though Mr. Mitchell's designs are as re-ıble as any in the World. The causes of what is called wing-flutter" are known to students of aerodynamics, but e conditions which lead up to those causes are unknown and e apparently incalculable at present, owing to aerodynamic ience being so young and so inexact.

High-speed aeroplanes designed by such experienced people Fokker and Dornier have broken owing to wing-flutter with-the past year or so. U.S. Army pilots have taken machines) and have deliberately dived them with the engine at full rottle, holding them down till the wings fluttered and broke thereafter descending peacefully by parachute. But Ameri-n designers are little if any wiser than ours as to the pre-se reason.

About all that is known is that at high speeds under certain r rather, under uncertain) conditions the tips of the wings begin twisting up and down till either the wing-tips fly to pieces or the whole wing wrenches itself off at the shoulder, where it joins the fuselage. And in some cases the whole wing twists, oscillating to and fro without breaking, but making it impossible for the pilot to control the machine.

There is a possibility that with the new 700 h.p. Napier Lion going at full power, perhaps for the first time, and taking the corner over the pier at full speed, the conditions which cause wing-flutter may have been attained for the first time since the S.4 was built. If so, there is no discredit to Mr. Mitchell. He merely met the incalculable.

There is also the possibility that Mr. Biard, who had been unwell only a few days earlier, may have been affected by the furious speed while cornering faster than he had ever done before and may have lost control of himself as well as of the machine. In taking a corner at high speed, centrifugal force throws the blood out of the brain, or at any rate prevents it from reaching the brain in full strength, and it also puts enormous strains on the intestines. Some pilots are more affected than are others. Also a man in poor health is more likely to be affected than is a man in the best of condition. And even a momentary lapse from full control of himself and his machine is likely to cause a pilot to crash at such speeds as those at which such machines as the Schneider racers take their corners.

Here again we were up against the unknown. Mr. Biard has flown aeroplanes of all sorts and sizes for many years. But nobody knew what would happen at the speed at which the S.4 was travelling. And nobody knew what was the limit of speed which the pilot could stand. If the machine did not crash through reaching her safety limit, then evidently the pilot did.

If the Supermarine Company and the Napier Company—or rather the Air Ministry, which pays for the machines—could have afforded to build two machines : and if they had been built and tested two months ago or more : then we might have had



A MIXED BAG.—Two D.H.9s (240 h.p. Siddeley Puma engines), and a Vickers Viking (450 h.p. Napier Lion engine) of the Royal Dutch Colonial Air Service, flying over Bandeong, Java. An example of how the British Aircraft Industry can get foreign business.

a similar accident on this side of the Atlantic. Then we might have discovered the cause. And we might have taken proper precautions to prevent it from happening again during the contest. Or we might not.

Anyhow, the S.4 has been wrecked. And we are all very sorry. And that is that. At any rate the accident gives the remaining Gloster a better chance of distinguishing itself, and though one knows that Mr. Longden is too good a sportsman to like winning under such circumstances, one feels that after all the Gloucestershire Co. have done for sporting flying without adequate reward, they do deserve some kindness from Fate.

But, whether we have won the Schneider Trophy or lost it by the time these notes appear in print, one fact stands out from all the talking and writing about the Competition. It is that now is the time for the British Aircraft Industry to make its great effort to capture the World's Aviation as in the past we captured the sea-traffic of the World and the shipbuilding trade.

The Moment For Action.

At no time in the History of Aviation has there been so much public interest in flying as there is to-day. In every country the newspapers continually publish long and more or less informed articles on aircraft, either as vehicles of commercial transport or as engines of war. The mass mind of humanity is moving towards aviation and now is our opportunity to make use of that psychological momentum.

Nobody ever thinks of disputing the statement that British aircraft are the best in the World so far as material and construction are concerned. The Aeronautical Inspection Department of the Air Ministry, together with the Englishman's inherent love of good workmanship, have placed our aeroplanes and engines in a class by themselves. And a British Airworthiness Certificate stands for the same thing among aeronautical people as does an A.1 at Lloyd's Certificate among shipping people.

We have the highest reputation for quality. But we need something more before we can capture the World's Markets, which are just beginning to be worth making a great effort to hold. And what we need are higher performances and lower prices.

Higher performances—greater speed, greater lifting power, quicker climb and slower landings—can be got by improvements in design. Lower prices can be got by greater output and also by simplifying our designs. To quote Mr. Bill Stout of Detroit, Mich., we can "simplicate and add more lightness." And bigger sales can be got by lower prices.

French Influence.

At the moment the French have the biggest share of the World's Markets. All the Flying Services of the small Central European nations are equipped with French aeroplanes. The South American nations use French aeroplanes more than any others. The Japanese Army's air equipment is almost entirely French.

The French have got the business of Central European nations almost entirely by lending to those nations the money which France owes to America and England for War Debts and lending it on the condition that it is spent on buying war material from France. That is to say France pays her own aircraft manufacturers with English and American money f aircraft supplied to Yugo-Slavia, Roumania and Poland—a to a less extent to Czecho-Slovakia—and trusts to luck to dr interest on the money from these nations.

The French have got the South American business larg by supplying old war machines at scrap prices and by sper ing large sums on persuading South American politicians th it is to their benefit to buy from France. The actual Serv people in the South American nations are straight enough a are themselves the first to regret that politics plays so lar a part in their equipment, for they are the people who suff

The Japanese Army has deliberately taken to French a craft because they have got hold of the notion that the Fren Army defeated the Germans in 1918 and that therefore Fren military equipment must be the best. Being purely imitati they have imitated French aeroplanes just as they ha imitated French artillery. Ignoring the fact that although t French 75 millimetre gun fired faster than the English fie gun and the German 77 mm. gun it did not shoot as acc rately or wear as well, they have copied the French gun. A ignoring the fact that though some French aeroplanes fl faster than English machines, the English did far more w flying with far fewer machines, they have copied French a craft.

Siam's small but efficient Flying Corps is also equipp with French aeroplanes. And Spain has also bought Fren machines in quantities.

But the time is near when France will lose her foreign tra in aircraft, as she has lost so many other promising marke through bad business methods and through incompatibil of temper.

Only last week a friend who is of Central Europe nationality wrote and told one that the French are getti themselves heartily disliked in all the Central Europe nations because of their arrogance and that the aircraft whi they have supplied by financial pressure are proving to be such poor quality that the aviators who have to use the would be glad to change them for anything else. He ev stated that though all the Central European nations are poli cally opposed to Germany they are more and more drawn Germany economically.

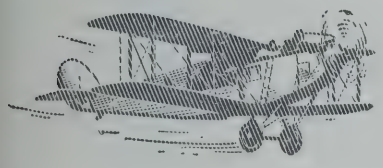
The South Americans, in spite of their Mediterranean orig which allies them to the French, also dislike French ae planes and French methods. The aviation missions whi France sent to South America soon after the Armistice, teach the indigenous armies and navies to fly did more ha than good in the end. They sold old war-time machines a they instructed by reckless war-time methods—such metho that during the War 1914-18 the French killed more aviato on their own aerodromes than were killed on the German si of the fighting line. So South America is about ready for change—if only our Aircraft Industry will make a stout effo to profit by such pioneer spade-work as has been done Major Scott in Chile and by Major Kingsley in Argentina.

As for Japan, the Japanese have always had the greate respect for British workmanship and material but they wa performance as well in their aircraft and that is evident why the Japanese Army has equipped itself very largely wi Breguet machines which owing to fundamental points in the



A LONG-DISTANCE FLIER.—The Fairey Freemantle (650 h.p. Rolls-Royce Condor engine). This machine is equipped with tanks holding about enough petrol to fly across the Atlantic.

Success in the Air depends upon reliability!





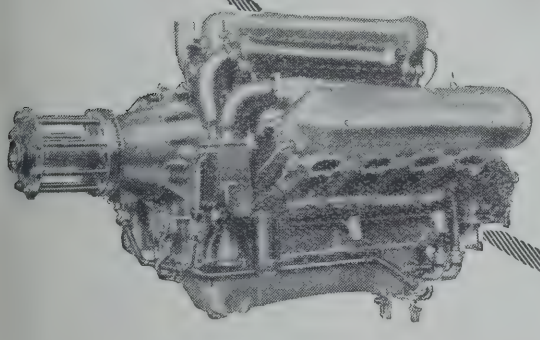
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design would not be passed as airworthy by our Air Ministry and are in fact dangerous according to British views.

One feels pretty certain that if we could offer Japan a general purpose two-seater with a better performance than the Breguet we should get the business. And the mere existence of the Fairey Fox shows that we can easily beat the Breguet. Therefore everything points to our being able to defeat the French in the World's markets if we set right away to work about it.

Germany's Policy.

Germany is another proposition altogether. The Germans are not allowed to build war machines, and although certain German makers have established themselves outside Germany where they are free to develop, very few of those firms have bothered about designing war machines and such of them as have built war machines seem rather to have gone in for all-metal flying boats than for single-seat fighters and big bombers—which rather upsets the constant bleat of the French that Germany is secretly building aircraft for war.

But the Germans certainly have concentrated on producing commercial aeroplanes. The three-engined Junkers and the Dornier Komet with Rolls-Royce engine, whatever they may be according to our scientific calculations, certainly are most attractive aeroplanes from the passengers' point of view.

[By the way, one sometimes wonders whether the people who design seats ever sit down. Has anybody ever come across a railway carriage seat, except the old Midland firsts, or a seat on a railway platform or a seat on a steamboat, which was reasonably comfortable as a seat? And the seats in most commercial aeroplanes are about the last word in discomfort, only most people are either too interested or too scared to notice how uncomfortable they are. On the other hand one has slept comfortably at ease in the seats in the Dornier Komet although as seats they take up no more room than the penitential chairs in other aeroplanes.]

Germany has the great advantage, when concentrating on capturing the World's Civil Aviation that, thanks to the Versailles Treaty and the French, she has no Air Force to maintain. Consequently the money which would otherwise have to be used for her Air Force can be spent in subsidising air lines and the manufacture of commercial aircraft.

To what extent the Junkers people are subsidised nobody knows, except probably the Junkers directors and one or two members of the German Government. But even allowing for a big subsidy the Junkers people certainly are showing astonishing enterprise both commercially and technically. During the past twelve months they have built quite a large number of different types of Junkers machines and they have extended their air lines most amazingly.

There is something a trifle humiliating in the fact stated in Sir Samuel Hoare's book that the British representative in Persia wishing to visit the High Commissioner of Iraq in order to meet our Colonial Secretary had to travel from Teheran to the Iraq Frontier in a Junkers monoplane. But here again we can design commercial aircraft to beat those of any other country if we set to work to do it. The British Pullman coach or British sleeping car is streets ahead of railway stock produced for similar purposes anywhere else in the World. And we can if we will make the effort produce commercial aircraft which are equally pre-eminent.

The Need For An Effort.

The whole point is that we have got to make an effort. It is all very well for a manufacturer to say that the commercial manufacture of aircraft—that is, manufacturing war aeroplanes in series for the Air Ministry—pays better than the manufacture of commercial aircraft, that is to say better than building an experimental commercial aeroplane and trying to sell it. But if nobody strikes out on an independent line of thought and action we shall never get anywhere at all and we shall simply leave the French and the Germans and ultimately the Americans to capture the World's markets.

As one has said so often, we can design aeroplanes which are fit to beat the World. There are before us now the Fairey Fox, which is by a long way the fastest two-seater fighter in the World, and the recently wrecked Supermarine-Napier S.4, which did at any rate put up a World's speed record before disintegrating in Chesapeake Bay. But we must put up more performances of that nature before we can convince foreign Powers that we have the goods which they want.

A Matter of History.

Certainly it is a pity that the Fox had to have an American engine instead of a British engine. Still more is it a pity that in order to acquire a squadron of Foxes the Air Ministry has had to order something like £60,000 worth of American engines. But it cannot be helped. And if ultimately the Curtiss engine comes to be manufactured in England, under the name of the Fairey Felix, the effect economically on the labour market and on our national finances will be the same as if it were entirely English.

When the Fox was designed there were no suitable British engines available. The Napier Company had designed a Napier Lion to take a direct-driven ungeared airscrew and had built one of them, which unhappily fell into Felixstowe Harbour in the Gloster's crash before the Schneider Tr contest last year. But if there had been a dozen of t direct-drive Napiers available the probability is that still would not have been put into the Fox.

When the Fairey Company started to design the Fox knew exactly what the Curtiss engine would do. It passed the American Army type tests, which are if anyt a trifle more drastic than our own. It had been tried under service conditions in a fighter squadron of the Army. And it had stood up to every test to which it submitted.

So Mr. Fairey decided to design his machine for Curtiss engine and the Reed airscrew and put it into air and offer it to the Air Ministry on the take-it or lea principle, knowing that if it came anywhere near his pectations half-a-dozen other countries would jump at it though the Air Ministry might refuse it.

Expert Hindrances.

The Napier Company, and one believes the Rolls-R Company, had been wanting to build ungeared direct- engines for quite a while but the Air Ministry's experts all opposed to them. They seemed to have some silly that no airscrew could be produced to transmit somet between 400 and 700 h.p. at the revolutions per minute g by those engines. So both firms had to stick lumps of gea on the noses of their engines and carry big heavy wo airscrews when they could have saved a lot of weight and got much higher efficiency by using small metal airsc driven direct.

Even to-day, so far as one can gather, our experts hav definitely approved the Reed airscrew, or any other r airscrew, although it is common knowledge among prac aviators that metal airscrews are much more efficient wooden airscrews besides being much safer against brea caused by the high powers which are now used. That say, the Napier Company and the Rolls-Royce Company both quite ready to supply engines of the required type their style was cramped by the Air Ministry experts.

Experimental Squadrons.

Meantime either this squadron of Foxes has got t produced and put into the air within a few months Curtiss engines made in America or else its creation has to be postponed for another year or so until the mac has been redesigned to take a direct-drive Napier or R Royce and until the engine firm concerned has produce necessary engines and got them through their type tes

The Fox squadron, like every other squadron equipped new machines in the Air Force, is purely an experim squadron. There is no machine in the World, not even Fox itself, which a wide-awake Supply Department w dare to standardise for the equipment of the whole Air F We are still so far from the ultimate development of the plane that no sooner has a new machine been designed its own designer wants to produce an improvement o And so long as our designers want to bring out new improved types so long should they be encouraged to d

If the Air Ministry decided to standardise Foxes or G or Herons or Virginias or Southamptons or anything and to equip every squadron of one class, whether si seaters or two-seaters or big bombers, with machine precisely the same design, the handling of stores and s parts in the field would be very much simplified. But t same machines would be out-of-date before half the squad were equipped with them.

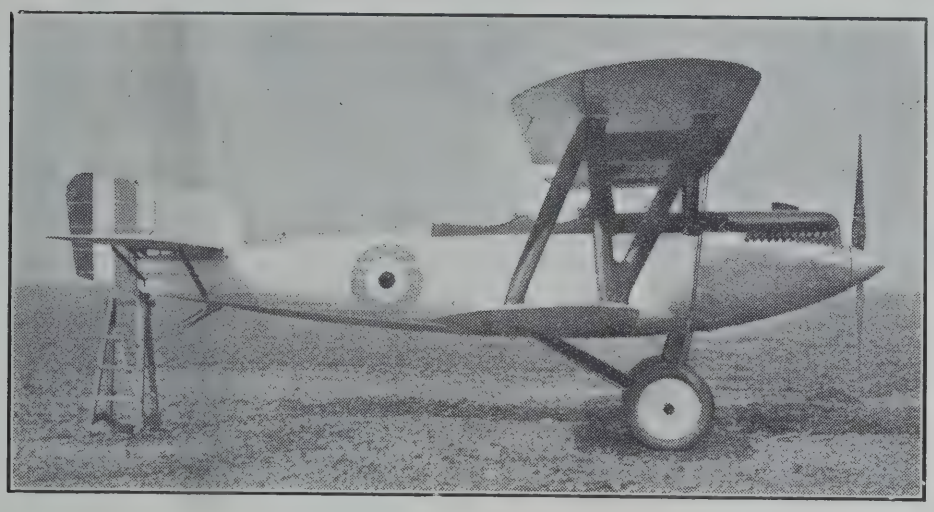
The present system of treating every squadron as an perimental squadron and equipping say eight squadron single-seat fighters with four different types of single fighting machines, is thoroughly sound. If there are different types of machines then the Air Force discove twelve months or so which is the best type of the four. so long as there are at least two squadrons equipped with type then each type of machine is safeguarded against possibility of a very good type of machine falling into hands of a very bad squadron, in which case the aero or its engine might be blamed for the squadron's own def

One has known cases oneself in which a certain typ aeroplane and engine has been blamed for the small am of work done by a squadron and one has seen that s squadron with the same machines develop a stat enormously high efficiency simply because a clever enthusiastic squadron leader has been appointed to it has got hold of a thoroughly good technical officer who taught his men how to run their machines and engines how to guard against breakdowns.

Practically every new type of machine and every new of engine is disliked by pilots and mechanics when it is is to a squadron because it gives them the trouble of lear new tricks either in flying or maintaining it, even though star turn pilots may be enthusiastic about it because o high performance.

Therefore it is very necessary that whenever new mach and engines are introduced they should be tried out

R·A·F· TYPES — No 7.



THE FAIREY "FOX" AEROPLANE.

The "Fox" two-seater day bomber is the latest Fairey aircraft to be ordered in large quantities for the Royal Air Force, it possesses a performance which far surpasses that of any other aeroplane in its class throughout the world.

The Fairey "Fox" is fitted with the Fairey Felix D.12 engine and with the Fairey-Reed metal airscrew, both of which contribute largely towards the remarkable speed obtained with this aircraft.

FAIREY AIRCRAFT

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only at the test station at Martlesham but by complete squadrons as standard squadron equipment.

The Question of Enterprise.

Those who have read the foregoing notes may argue that the various firms of aeroplane and engine makers who collectively compose the British Aircraft Industry might very well have defied the Air Ministry experts and might have produced new and improved types of machines on their own account, just as the Fairey Company produced the Fox and as Short Brothers produced their all-metal machines and as the Gloucestershire Company, working on a different plan of campaign, spent vast sums in building racing machines. The answer is that unfortunately the majority of firms in the Aircraft Industry simply have not had the money to spare during the seven years since the Armistice.

Mr. Fairey was fortunate in having big contracts for seaplanes which made a very nice profit. And with a fine combination of genuine patriotism and commercial foresight he chose to spend a good many tens of thousands of pounds on producing the Fox in defiance of the experts. Even earlier than that Mr. Oswald Short, whose firm had done very well out of building motor 'bus bodies for the London General Omnibus Company, pluckily spent other tens of thousands on building his all-metal machines in defiance of the Air Ministry. But taking the Trade all round it could not afford to defy the Air Ministry experts and it was more or less bound to follow the commercial policy of building what the experts wanted.

But now that the Trade in general has made money out of the commercial construction of aircraft it will do well to spend quite a good deal of its profits in producing more and more machines in defiance of the experts.

The Royal Air Force cannot refuse to buy the best. The Air Staff has no wish as yet to standardise on any one type. It realises that all new machines must be merely stop-gaps for years to come. And any firm which produces a machine of any one type which obviously has a better performance than any rival maker's machine designed for a similar war purpose is pretty well sure of orders.

But when firms do start building such machines they will have to realise that they are building in open commercial competition with rival firms. If their latest design happens to be beaten by somebody else they will lose the money spent on that experimental machine.

That is only a business proposition. If a motor-car firm produces a new car of a new type it has to stand the chance of that car being beaten on performance or price by some other firm in the car trade. And, as a matter of fact, the Aircraft Industry will never really be an Industry until all the firms are competing with one another on precisely such a commercial basis.

When our aircraft firms are prepared to offer, not only to our own Air Ministry but to all foreign nations, aeroplanes which can compete in performance, as well as in quality and price, with those of foreign nations then the Aircraft Industry can really go out after the foreign markets. The reputation of British workmanship is sufficiently high to assure that British aeroplanes will always command a somewhat higher price than those built by other nations but we must at all costs compete on performance. And we must send our aircraft about the World as the French and Germans, and to some extent the Americans, have done.

Showing the Flag.

When we are ready to do so then we may call on the Air Ministry to "Show the Flag" for us in the same way that the British Navy has always shown the Flag, not merely for the prestige of Great Britain all over the World but very definitely to help the British Shipbuilding Industry.

In the past the Navy has been very considerably helped by the fact that British ship-yards have built warships for foreign nations. On various occasions when we have been on the point of going to war the Admiralty has taken over from British ship-yards ships which have actually been completed for foreign nations.

Similarly, if our aircraft factories are busy building for foreign nations war machines which are possibly a trifle better than those which are built to Air Ministry specifications, not only are those machines available in the event of a sudden outbreak of war but the factories themselves are in a better position to produce a suddenly increased output in case of war. For this reason it is very well worth the while of the Air Ministry to send some of its squadrons on friendly visits to foreign nations to show the Flag.

We did this to a small extent just after the Armistice when we sent some flying boats to visit the various nations which border the Baltic. But we have done nothing of the kind since then, compared with the way in which the French have sent Military Aviation Missions all over Europe and South America and to Japan, nor compared with the way which the Germans have sent commercial aircraft to be flown in foreign countries.

The Central African Trip.

The Air Ministry has recently made known its intentic of sending a flight of R.A.F. machines from Khartoum acro Central Africa to Nigeria. Sundry other R.A.F. machines ar one believes, to fly from Cairo to the Cape at a later date.

A good deal of fuss has been made over the fact that t Central African Flight is to be made on De Havilland 9 with Liberty engines. Certainly it is unfortunate that Ame can engines should be used. But it so happens that there no squadron in the R.A.F. which is equipped for duty tropical countries with more modern aeroplanes and wit English engines. The old 9as with their present type tropical equipment have been tried out under all possib conditions in India and Iraq and Egypt. And consequent the pilots and mechanics of the 9a squadrons know everythin there is to know about the maintenance of their machin and are prepared for all possible emergencies.

No doubt the success of the flight to Nigeria will be seize by our friends in America as a good advertisement for Ame can engines. But nobody in America is building Liberty e gines so actually no particular firm can take the credi Modern American engines if used for a similar tropical flig would be just as likely to break down as would be any e gine made in any other country. And on the other hand th majority of the great tropical flights to Australia and the F East have been made either with Rolls-Royces or Napiers.

There is also the further satisfaction that the Central Africa flight does not pass through any country which is likely t be a purchaser of aircraft. One can scarcely imagine th Sultan of Kano buying Liberty engines as a hobby.

So long as the later R.A.F. journeys to show the Flag a done with all-British aircraft we need not worry very muc about this Central African flight, which is evidently to b made for a purely political purpose, namely, to impress the inhabitants of Central Africa the power of the Royal A Force, and the advisability of being polite to the British Fla It is in fact a way of teaching niggers to be air-minded.

Educating Foreign Buyers.

There is another way in which the Air Ministry certainl might do more than it does to help the Aircraft Industry an so ultimately to help itself. That is by doing more to edu cate foreign Service aviators in this country.

A good deal more might be done in the way of trainin pilots of foreign nations at R.A.F. stations. The Frenc have done an immense amount of work of this kind.

Also a good deal more might be done in the way of show ing what are supposed to be our state secrets to represent tives of foreign air services. Surely when we have a goo torpedo-dropping machine there can be no harm in demon strating to visiting Naval Missions how well our torped machines work. And there can be no harm in giving suc visitors demonstrations of bombing and ground-strafing.

It is all good practice for our own pilots and it has a excellent moral effect on the visitors. But one has known case in which such demonstrations have been definitely refused.

Also we might do a great deal more in showing what ar supposed to be our secret machines. Apropos of which ther is a delightful story of the Air Attaché of a foreign natio who was allowed as a great favour to visit one of our exper mental stations. He was shown all the funny machines whic have appeared at various R.A.F. Pageants and so forth, an sundry other machines of whose existence he could not b ignorant. But he was carefully boomed off one particula shed, the excuse being given that the shed was full of ol junk on which it was not worth his while to waste his time.

With his usual amiable smile the foreign Attaché pulle some photographs out of his pocket and said "I wonde whether your old junk includes these?"—and showed th astonished R.A.F. officers a complete set of photographs all the highly secret machines which were in that shed.

One has always argued that all the foreign attachés do g photographs of all our most secret machines. So surely it better policy to impress them with the excellence of ou machines than it is to pretend that they do not exist.

Helping Those Who Help Themselves.

With a little reasonable assistance from the Air Ministr of the kind suggested and with an organised effort on th part of British aircraft constructors we may very well begi now an era of prosperity in the Aircraft Industry such a we have never yet known.

Let us start out and go for World's records of all sort Let us push ahead with all-metal machines and with the de velopment of commercial aeroplanes and flying boats. Le us spend some of the money we have got on making mor

In this matter one speaks for the Aircraft Industry. Th Aeroplane has not yet made any money. But whenever has made a little money its increased revenue has alwa been spent on enlarging and improving the paper, strong i the faith that the better the paper is the more good it ca do to the Aircraft Industry, and that ultimately bread thu cast upon the waters will return with compound interest.

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THE SCHNEIDER TROPHY CONTEST.

The Schneider Trophy Contest which was due to take place at Baltimore on Saturday, Oct. 24, was postponed until Oct. 26 owing to strong easterly winds and heavy rain.

On Oct. 22 Mr. H. Biard took out the Supermarine-Napier S.4 to undertake the navigability and seaworthiness trial. The weather was ideal with very little wind and a calm sea. Mr. Biard after getting off made several sharp turns and put the machine onto vertical banks. After the last it seemed to develop wing-flutter and get out of control.

Mr. Biard brought the machine down horizontally but the force of the impact with the water was so great as to smash the floats and the machine partially sank. The pilot was picked up by a launch and brought ashore suffering from immersion and slightly dazed as the result of his crash.

All the other machines successfully passed the preliminary tests and were thus ready for the race.

Reports state that immediately after Mr. Biard's accident, the second Gloster-Napier III, which was acting as reserve, and for some unknown reason had not been assembled, was hurriedly prepared to take the place of the Supermarine, with Mr. Hinkler as pilot.

If these reports be accurate the managers of the British team ought to explain how it was that the second Gloster III was not standing by, fully tested, and in complete readiness to take the place of either her sister machine or the S.4 in case of accident. There seems to have been very bad mis-management somewhere.

On Oct. 23, the second Gloster Napier III was finally assembled, and at 17.00 hours Mr. Hinkler took it out but a broken wing-bracing wire forced him to abandon the tests until the following day, although repairs had been made hurriedly in the hope that he could complete them the same day. However it was decided that owing to darkness to make the attempt would have been too risky, and Capt. Wilson, the Captain of the British team, ordered the tests to be abandoned.

If this machine had been flown and properly tested during the weeks which the team spent at Baltimore, Mr. Hinkler should have been able to go out and do his tests as soon as ever Mr. Biard had crashed.

Thus only Mr. Hubert Broad of the British team was left in the contest. But a petition was signed by the competing American and Italian pilots requesting the Contest Committee to allow Mr. Hinkler to qualify on the morning before the race and Mr. Ericson, the Referee, agreed.

On Saturday, Oct. 24, Mr. Hinkler attempted to carry out the reliability qualification test, but half-a-mile off-shore the sea was too rough and he decided not to continue and was towed in. Later in the day, owing to the sudden arrival of a 60 m.p.hr. gale, the Contest was postponed.

This gale played havoc with the large number of U.S. Naval Aircraft that were moored in Chesapeake Bay in readiness for a Naval Air Pageant to take place in connection with the seaplane races which were to be held at Bay Shore Park concurrently with the Schneider Trophy Contest. Seventeen Glenn Martin S.C.1s were torn from their moorings and wrecked on the foreshore. Seven of them became total wrecks.

On Oct. 26 the weather moderated and Mr. Hinkler again took out the Gloster-Napier III in an endeavour to qualify. He took off and circled once or twice. He then descended for the half-mile taxi-ing test. Out in the bay, however, the water was still rough, with waves two or three feet high. The machine alighted safely but the pounding of the waves cracked the float struts and the machine settled in the water. The still revolving airscrew damaged the floats and the Gloster III was taken in tow, thus finally eliminated from the Contest, leaving Mr. Broad as Britain's representative.

By noon the wind had died away and the water became quite smooth.

At 14.38 hours the first machine, Lieut. Doolittle's Curtiss R.3.C.2, taxied across the starting line.

At 14.41 hours Mr. Broad got away, just as Doolittle was completing his first lap.

Then followed Lieuts. Cuddihy and Ofstie on two Curtiss R.3.C.2s and Signor di Briganti on the sole Macchi 33. The other Macchi, to be piloted by Signor Morselli, was withdrawn owing to engine trouble.

The respective speeds of the contestants are shown in the accompanying table and indicate that Lieut. Doolittle wa the winner from the very beginning. His run-away win ca be attributed to his ability to take all the turning points a out, or nearly so, and go to prove that the race was ver largely won by the human element.

Lieuts. Cuddihy and Ofstie both failed to complete th course. Lieut. Cuddihy was forced to descend a mile fro the finish owing to running out of petrol and Lieut. Ofst ran out of oil and had a seized engine as result.

Signor di Briganti, who was third and last, flew an excelle course, taking the turns almost as well as Doolittle. But h machine was hopelessly out-classed.

The failure of the British team is disappointing but n discouraging. Both machines sent over to America wer capable of high speed on the straight away course. Th Supermarine, untried, had put up a World's record of 22 m.p.h. and the Gloster Napier had done speeds of 235-24 m.p.h. during tests.

The whole crux of the matter is that although better tha usual we were not far enough advanced in getting th machines out and practising on them.

Particular praise has been given to the Supermarine Co. i producing a machine in time for the race, although it wa only ordered in March of this year. But it should have bee ordered the previous October (after the last Schneider Co test) and thoroughly tested out, not in straight flights, b over a replica of the Triangular Schneider Trophy Course, f months before sending to America.

One can only hope for next year. Perhaps plans are unde way already. We must win the Schneider Trophy next yea if we want it at all.—L. B.

Apropos the Schneider Trophy Contest and the extraordi ary speed of Lieut. Doolittle's machine, one or two interes ing side lights are thrown on this by reading various para graphs in both British and American newspapers.

It is known that an order for three racing aeroplanes wa placed with the Curtiss Co. for joint use by the Army and th Navy, together with an order for twelve V.1400 Curtiss en gines. The first machine completed was used jointly by th Army and Navy as a practice machine and this machine wa put through its trials during the second week of Septembe

Both Lieut. Williams, U.S.N., and Lieut. Doolittle, U.S Army Air Service, flew the machine and on Sept. 18 Lieu Doolittle covered two laps of the Pulitzer course at 254 m.p.h On the same day Lieut. Williams, U.S.N., by diving from 20 300 feet to 100 feet covered the kilometre course with a follow ing wind of 10 m.p.h. in 7.4 seconds, or over 300 m.p.h.

This first machine was described in one or two cables fro America as the "freak dog ship," the word "freak" re ferring presumably to the engine, to which reference made later in a clipping from *The New York Times* an "dog-ship" is merely an Americanism for a hack or practic machine (e.g., our phrase "trying it on the dog.")

The following cutting from *The New York Times* is inte esting. Although it refers to the Pulitzer Trophy Contest, th machines used for that competition are the same as thos used in the Schneider Trophy Contest except for the additio of floats, and the "freak dog-ship" being jointly used fo practice by the Army and Navy was not in the Pulitzer Race

There were several explanations offered for the lower spee [Lower in the contest than in practice laps.—Ed.] One, advanced b officers who have been in close touch with what has gone on i the big hangar where the racers have been groomed, was that th engines had not developed as had been expected.

Twelve motors were built for these planes. The first is now b lieved to be a freak, because of its marvellous efficiency. It d veloped more than 600 horsepower and used only a quart of oil a hour. This was the motor with which Lieutenant Alford William the navy contestant in the race, had made 302 miles an hour in th practice plane.

When the other motors were tried out, however, they develope defects, and proved to be great consumers of oil. Their horsepow was much less than that of the first plane. An effort was made improve them, but it was only partially successful. That is the reas that Lieutenant Bettis's time yesterday was only three miles a a-half faster than Williams's time in 1923, when he won the Pulitz race with a speed of 245.27 miles an hour.

The weakness of Lieutenant Williams's motor was shown in h

FIGURES OF THE CONTEST IN MILES PER HOUR.

Pilot.	Machine and Engine.	1st lap.	2nd lap.	3rd lap	4th lap.	5th lap.	6th lap.	7th lap.	Result.
Lieut. Doolittle, U.S.A. (U.S. Army).	Curtiss R.3.C.2. (Curtiss V.1400 engine).	223 157	228.250	230.239	231.280	231.705	232.168	232.572	1
Mr. H. S. Broad, Gt. Britain.	Gloster-Napier III. (Napier Lion Engine).	194.275	196.432	198.104	198.921	No figures	available.	199.169	2
Lieut. Cuddihy, U.S.A. (U.S. Navy.)	Curtiss R.3.C.2. (Curtiss V.1400 engine).	211.590	216.254	219.404	219.404	No figure.	220.452	Ran out of petrol.	Did not finis
Lieut. Ofstie, U.S.A. (U.S. Navy.)	Curtiss R.3.C.2. (Curtiss V.1400 engine).	207.959	213.453	215.264	217.155	218.307	Ran out of oil, engine seized.	—	Did not finis
Signor di Briganti, Italy.	Macchi 33. (Curtiss D.12a engine).	166.813	No figures	available	166.962	No figures	available.	168.444	3

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England to South Africa	6,281 miles
England to Australia	11,500 miles

These flights were accomplished without any change of engines en route

"The Britannia Trophy, presented by the Royal Aero Club for the best performance in the year, has been awarded for the year 1924 to Wing-Commander Goble and Flight-Lieutenant McIntyre for their flight round Australia in a Rolls-Royce-Fairey."

"Daily Telegraph," March 26th, 1925

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speed, which dropped consistently with every lap. His first lap was made at 243.69 miles an hour, his second at 242.89, his third 241.39, and his fourth at only 234.66. Bettis, on the other hand, did his first lap at a speed of 247.81 jumped up to 249.44 on the second, did the third in 248.74 and 249.97 on the fourth.

There was little to choose between the two pilots, the figures telling the story of motor efficiency. It was said that Williams, in his first tryout of his motor, opened it up too wide and injured it slightly, whereas Bettis contented himself with a half open throttle in his tryouts and conserved the motor.

After the race there was no doubt that every pilot on the field, as well as the high army and navy officers present, were disturbed at the showing of both planes, for in a few days the United States will have to defend its hold on the Schneider Cup at the seaplane races at Baltimore. The planes have been considered the fastest machines the Government owns. The practice plane, however, with its freak motor, is still available. It may be able to compete successfully with the British speed plane and the planes of other nations which have been sent over to capture the Schneider trophy.

Lieut. Doolittle has for some years now been engaged on making tests at turning at high speed and is known to possess a phenomenal "figure of G." This may account for the high winning speed of the Schneider Trophy Contest which is some five miles an hour faster than the Supermarine's speed record on the straight 3 km. course at Calshot made last month, and quite close to the winning speed in the Pulitzer Contest, being only about 15 miles an hour slower with floats than with wheels.—L. B.

THE EGYPTIAN AIR LINE SCHEME.

No further information is to hand concerning the projected Trieste-Alexandria air line, for which a scheme financed by Egyptian capital has been put forward by Hassan Anis Pasha, lately a member of the Egyptian Government. But one has had an opportunity of ascertaining the part which Editorial Services Ltd. had in circulating the news of the formation of the scheme, as published last week.

Editorial Services Ltd. has acted for several years as an agency for the dissemination of news which they receive from official sources, largely from the Governments of British Dominions and Dependencies, and big industrial undertakings of a public service nature. In this way the scheme of Anis Pasha, as a former member of the Egyptian Government, came into and went out of their hands.

One would like to make quite clear to readers of THE AEROPLANE that one had no intention of suggesting last week that Editorial Services were in any way concerned with Anis Pasha's statement, other than in circulating it as news. Certainly one did not intend to imply that they were knowingly circulating anti-British propaganda, and one wishes here and now to apologise to Sir Basil Clarke and Editorial Services Ltd., if anyone has received such an impression. Sir Basi own work during the War 1914-18, and the work of his fi since then, have been so essentially pro-British that any id of their taking an anti-British attitude on a trade or any oth question is absurd.

The title of the notes on this subject last week, "Cuckoo in the Nest," was adopted, without asking, fr Messrs. Leslie Henson and Tom Walls, to indicate the w in which the German aircraft people manage to squeeze out of commercial nests in which our aeronautical eggs ha been laid. Egypt, of all countries, ought to have a pro respect for British aircraft—yet here we find Anis Pasha, his advisers, somehow converted to German all-me machines.

It is true that no British all-metal aeroplanes are flying regular air lines. But in all-metal, especially all-steel, c struction, there are British methods, such as those of Boul and Pall, the Hawker Co., the Bristol Co., Short Bros., a others which are quite considerably ahead of German metho And these could be adapted to building passenger-cabin ae planes, if anybody wanted them, just as easily as to v machines.

Apparently the subtle German has not only successfu played the cuckoo on our contractors, but he has manag to get his Egyptian friends to advertise the fact throu Egyptian official channels.

It will matter little in the end, for the Trieste-Alexand line, whether by all-metal machine or by flying boat, is impracticable proposition for several years to come. But c is sincerely sorry if one has given anyone a wrong impress about the part Editorial Services has had in the proceedin

C. G.

TOKYO—ROME.

On Oct. 17 the Marchese di Pinedo and Signor Campane who recently completed their great flight from Rome Tokyo via Melbourne, left Tokyo to return to Rome, on th Savoia 16 bis flying boat, in which a new 450 h.p. Lorrai Diétrich engine has been installed.

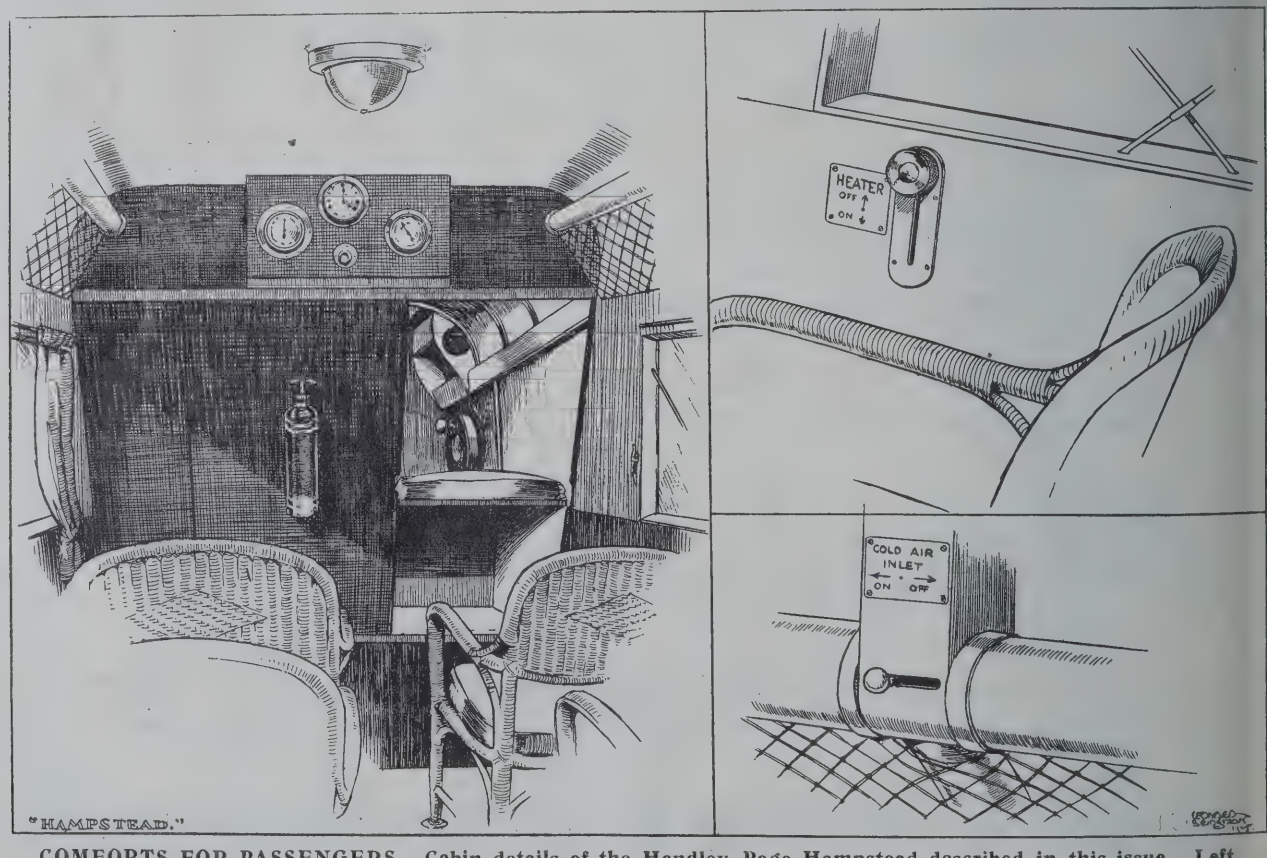
They left Kasumigaura Naval Air Station at 06.30 hours a alighted at Kushimoto at 09.40 hours. After refuelling th left for Kagoshima where they arrived at 19.30 hours.

On Oct. 18, they flew to Shanghai and arrived safely 12.15 hours.

On Oct. 19 they flew from Shanghai to Amoy and fr Amoy to Hong-Kong, arriving at 15.50 hours.

On Oct. 21 they reached Saigon, Indo-China.

On Oct. 22 they were reported to have landed at Tach near Bangkok, Siam.



COMFORTS FOR PASSENGERS.—Cabin details of the Handley Page Hampstead described in this issue. Left, a view looking forward in the cabin. The instruments at the front are clock, air speed indicator and altimeter, with an emergency press button to attract the attention of the crew. The door on the right leads to the cockpit. On the right are shown (top) the hot air control—one of which is fitted on each side alongside the front seat—and (bottom) the cool air regulator fitted in the luggag e rack tubes at the after end of the compartment.

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The London Gazette.

Oct. 20.

General Duties Branch.—Flt. Cadet F. Priestman having successfully passed through the R.A.F. Cadet College, Cranwell, is granted a perm. comn. as a Plt. Off. on probation with effect from Sept. 30, and with seniority of July 30.

Flg. Off. J. D. I. Hardman, D.F.C., is granted a perm. comn. in the rank stated (Sept. 30). R. A. Seaton is granted a S.S. comn. as a Flg. Off. with effect from and with seniority of Sept. 1. (Substituted for the notification in the *Gazette* of Sept. 18).

The following Plt. Offs are promoted to the rank of Flg. Off.:—F. W. L. C. Beaumont (June 19); G. A. Simons (Sept. 3); R. W. E. Bryant, J. Summers, W. A. Tattersall (Sept. 14); C. R. Troup (Oct. 14). Flg. Off. I. A. Bertram (Lt., R.N., retd.) is granted the honorary rank of Flt. Lt. (Oct. 2).

Flt. Lt. R. E. Nicoll is transferred to the Reserve, Class C (Oct. 15); Flt. Lt. J. A. Barron is placed on the retired list at his own request (Oct. 21).

Stores Branch.—The following Flg. Offs. are granted perm. comns. in the rank stated (Oct. 21):—F. W. van Blommestein, E. A. Slater, R. M. Thomas.

Flg. Off. R. D. Lambert is restored to full pay from half-pay (Sept. 22).

Accountant Branch.—Flg. Off. H. C. Roberts is granted the acting rank of Flt. Lt. from June 7, 1924, to Sept. 22, 1924, inclusive.

Medical Branch.—R. J. K. Chattey is granted a S.S. comn. as a Flg. Off. for three years on the active list, with effect from and with seniority of Sept. 28.

Reserve of Air Force Officers.—The following are granted comns. in Class A.A., General Duties Branch, as Plt. Offs. on probation:—J. Hill, C. W. Lofthouse, R. G. Shaw (Oct. 5); C. W. Carter (Oct. 6); H. S. Fulton, O. M. Sheil-Small (Oct. 7).

The following are confirmed in rank:—Flg. Offs.—R. H. Mayo, O.B.E. (Sept. 25); J. C. McCormick (Oct. 2). Plt. Off.— H. Jones (Sept. 11).

Flg. Off. S. H. H. Swanton is transferred from Class A to Class B (Sept. 11); Plt. Off. C. L. Atkinson is transferred from Class A to Class B (Aug. 4); Flg. Off. E. M. Milling is transferred from Class A to Class C (Oct. 11); Flg. Off. E. N. Hewitt is transferred from Class B to Class C (Oct. 15); Flg. Off. R. A. Seaton resigns his comn. (Sept. 1). (Substituted for the notification in the *Gazette* of Sept. 18); the comn. of Plt. Off. on probation E. Busby is terminated on cessation of duty (Sept. 20).

Memoranda.—The following are granted temp. comns. as Flt. Lts. for duty under the Director of the Meteorological Office (Oct. 2):—R. P. Batty; R. G. Veryard.

Appointments.

Week ending Oct. 26.

General Duties Branch.—Group Captain E. F. Briggs, D.S.O., O.B.E., to H.Q. Inland Area for Technical Staff duties, 25/10.

Squadron Leaders H. E. M. Watkins, A.F.C., R.D., to R.A.F. Depot on transfer to Home Estab., 4/10. C. N. Lowe, M.C., D.F.C., to No. 602 City of Glasgow Sqdn., 14/9.

Flight Lieutenants H. G. Bowen, M.B.E., to No. 601 County of London Sqdn., 14/10. C. R. Keary, to No. 603 City of Edinburgh Sqdn., 14/10. The Hon. J. H. B. Rodney, M.C., to No. 600 City of London Sqdn., 14/10. G. Martyn, to No. 602 City of Glasgow Sqdn., 14/9. S. T. B. Cripps, D.F.C., to No. 25 Sqdn., Hawkinge, 13/10. R. H. Hanmer, M.C., to No. 84 Sqdn., Iraq, 2/10. R. St. H. Clarke, A.F.C., to R.A.F. Depot, 2/11. R. L. Crofton, M.B.E., to No. 47 Sqdn., Egypt, 4/10.

Flying Officers C. S. Whellock, to No. 14 Sqdn., Palestine, 2/10. R. N. Hesketh, to I.A.A.D., Henlow, 29/10. (Hon. Flt. Lt.) D. S. Cairnes, to H.Q., Halton, 22/10. N. T. Goodwin, to No. 31 Sqdn., India, instead of to Aircraft Depot as previously notified, 9/9. C. C. Harris, to No. 5 Sqdn., India, instead of to Aircraft Depot as previously notified, 9/9.

Pilot Officers H. W. Raeburn, to No. 60 Sqdn., India, instead of to Aircraft Depot as previously notified, 9/9. H. B. Barrett, to No. 31 Sqdn., India, instead of to Aircraft Depot as previously notified, 9/9. D. J. Lloyd, to No. 60 Sqdn., India, instead of to Aircraft Depot as previously notified, 9/9. W. J. R. Early, to No. 3 Sqdn., Upavon, 26/10. L. A. Egglesfield and H. Walker, to Aden Flight, 3/10. A. C. Evans-Evans, to No. 14 Sqdn., Palestine, 29/8. J. H. McC. Reynolds, to Meteorological Flight, Duxford, 13/10.

Medical Branch.—Flight Lieutenant (Hon. Sq. Ldr.) W. R. Reith, M.D., A.M., to R.A.F. Depot, 19/10. Flying Officer R. J. K. Chattey, to R.A.F. Depot, 22/10.

Stores Branch.—Flight Lieutenant D. W. Wilson, to Aden Flight, 3/10. Flying Officers E. A. Burridge, to No. 3 Stores Depot, Milton, 14/10. G. Scarrott, to No. 603 City of Edinburgh Sqdn., 14/10. E. G. Keeping, to remain at I.A.A.D. F. D. D. Gaussen, to No. 1 Stores Depot, Kidbrooke, 19/10. A. J. Adams, to H.Q., Special Reserve and Auxiliary Air Force, 26/10.

Accountant Branch.—Flight Lieutenant I. L. Wincer, to H.Q., Egypt, 1/10. Pilot Officers F. Rigby, to No. 29 Sqdn., Duxford, 11/10. T. P. E. Campbell, to I.A.A.D., Henlow, 11/10. J. O. Morrison, to M.A.E.E., Felixstowe, 11/10. R. J. Wishlade, to Electrical and Wireless School, Flowerdown, 11/10.

Kurdistan Awards.

The King has approved of the following rewards in recognition of valuable and distinguished service rendered in connection with operations in Kurdistan in May, 1924:—

M.C.—Flg. Off. G. A. Elliot, No. 6 Armd. Car. Co., R.A.F.; Obs. Off. L. T. Kerry, No. 6 Armd. Car Co., R.A.F.

The King has approved of the award of the Military Medal to the following for bravery in the field in connection with operations in Kurdistan in May, 1924:—

351286 Cpl. G. H. Lewis, No. 6 Armd. Car Co., R.A.F.; 238748 Cpl. (A.-Sjt.) T. Ashcroft, No. 6 Armd. Car Co., R.A.F.

R.A.F. Cadetships.

The Air Ministry announces:—Aircraft Apprentices C. McK Grierson, A. C. Bentley, C. C. O'Grady, and W. M. Moore from the School of Technical Training, Halton, and Aircraf Apprentice L. P. Moore, from the Electrical and Wireles School, Flowerdown, have been selected for cadetships at th R.A.F. Cadet College, Cranwell, on the results of the ex aminations held on completion of their three years' trainin as aircraft apprentices.

"Sir Charles Wakefield" Scholarships, valued at £75 each have been awarded to Flight Cadets C. McK. Grierson an A. C. Bentley, and the "Hyde-Thomson" Memorial Prize valued at about £33, to Flight Cadet L. P. Moore. In addition the "Sir Charles Wakefield" scholarship, which was no awarded in June, 1924, since no eligible candidate qualified fo entry, has now been awarded to Flight Cadet H. F. M Pickford.

A Fatal Accident.

The Air Ministry regrets to announce that as a result o an accident at Abu-Sueir, Egypt, to a D.H.9a, of No. 4 Flyin Training School, Abu-Sueir, on Oct. 21, Plt. Off. Geoffre Walter Cripps, the pilot and sole occupant of the aircraf was killed.

H.M.S. Argus.

The Morning Post of Oct. 27 states:—

The aircraft carrier *Argus* (Capt. S. L. Willis), of the Atlantic Flee arrived yesterday at Chatham Dockyard, under orders to pay off in dockyard control for a large refit. The Admiralty have allocated sum of £94,388 for the refit of the *Argus*, whose first cost amounted £1,307,615. The *Argus* was built during the war, and has had u wards of six years' service in full commission.

The aircraft carrier *Furious* (Capt. J. L. Pearson) replaces the *Arg* in the Atlantic Fleet.

University Commissions.

The Air Ministry announces that, on the recommendatio of their respective Universities, the undermentioned graduate have been appointed to permanent commissions as Pil Officers in the General Duties Branch of the R.A.F., with a ante-date in each case of 12 months' seniority under th University Candidates' scheme of entry.

Joseph Clarence Cross Slater and Charles Francis Care Coaker, Cambridge University; Richard Fitzgerald Findla Oxford University.

In addition, Mr. William Harry Osborne Rumfitt, of Cap Town University, who was recommended by the Governo General of the Union of South Africa under the Universit Candidates' scheme applicable to the Dominions, has bee appointed to a permanent commission as a flying officer wi an ante-date of 12 months' seniority, on satisfactory com pletion of a probationary period as Pilot Officer.

The Auxiliary Air Force.

At a meeting at the Westminster City Hall on Oct. 23 the Territorial Army and Air Force Association of the Coun of London, Sir Samuel Hoare, Secretary of State for Air, sa that Auxiliary Air Force Squadrons only were being forme in London, and the Air Ministry were very fortunate in th Lord Edward Grosvenor was going to command the squadr which the County Association was forming. It was to be day-bombing unit, with single-engined aircraft, and wou ultimately be organised in three flights of four machines eac giving a total strength of 12 first-line aircraft.

At the start the squadron would have a large proportion training machines, the first three of which should becon available in the next two or three days. The total establis ment was 28 officers and 177 airmen, of which 26 officers a 152 airmen would be organised on an auxiliary basis. T proportion of Regular to non-Regular *personnel* was th 1 to 8, and the association would see from these figures th they were not asking for a big number of men.

The squadron would be based on Northolt Aerodrome un such time as the negotiations for the acquisition of Hend Aerodrome were completed, and until permanent headquarte were found they were greatly indebted to the 22nd Armour Car Company and to Lord Howard de Walden, its C.O., f the use of the quarters at Elverton Street. Here much the technical instruction could be carried out without t necessity for going out to the aerodrome.

Air Chief Marshal Sir H. M. Trenchard, Bt., said he fi drew up the scheme for an Auxiliary Air Force in 1919, f he had been impressed with the extraordinary rapidity wi which civilians who joined the Air Force during the w mastered their work. The new squadrons would eventua be one-quarter of the defence force.

On the motion of the Chairman, Mr. R. Holland-Martin, t association unanimously agreed to render the fullest assistan in the formation of the squadron.

The Cambridge University Squadron.

The Times of Oct. 24 states:—

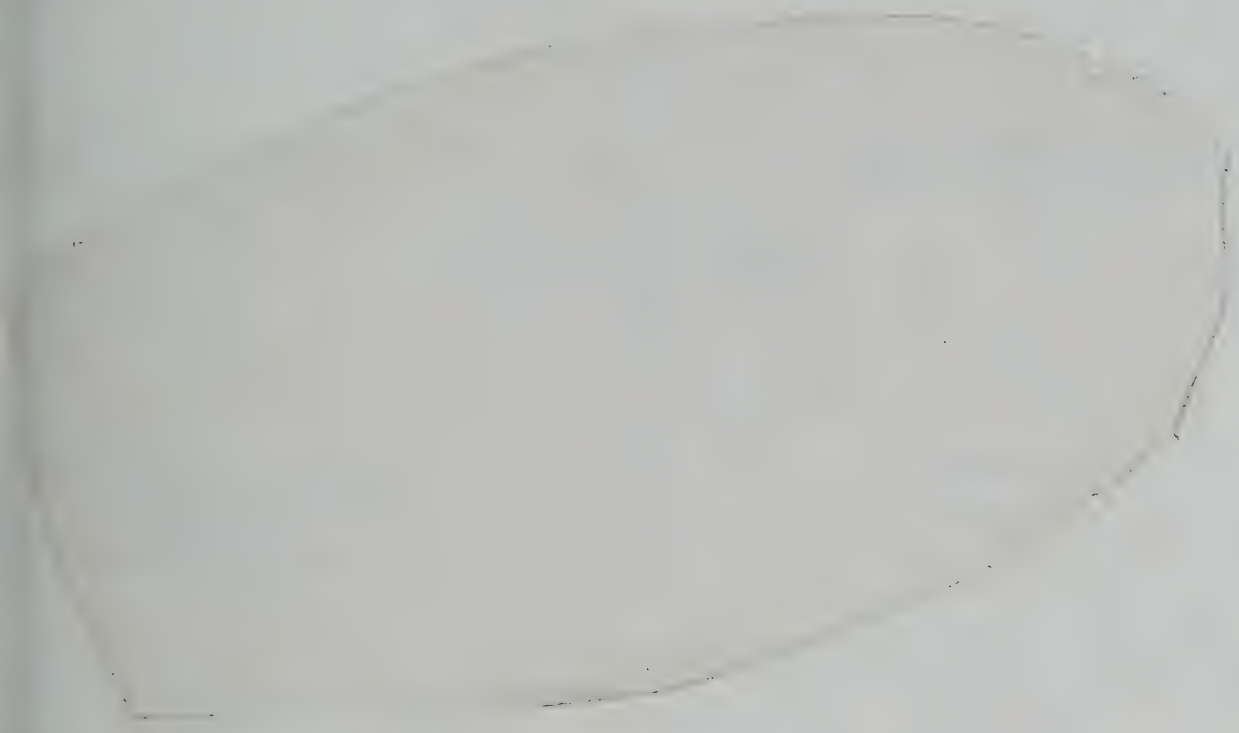
The objects of the Cambridge Univesrity Air Squadron, which h recently been organised jointly by the University and the

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LIGHT AEROPLANE

27-60 H.P. CIRRUS ENGINE.



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Ministry, are described in the *Cambridge Review*. The chief aim, it is stated, is to encourage the flow of candidates for commissions in the Royal Air Force, the Air Force Reserve, and the Auxiliary Air Force to assist those desiring to take up aeronautics professionally in a civilian capacity, and to stimulate interest in the technical and research problems of aviation. The squadron will work under the Air Ministry and Board of Military Studies in touch with the C.U.O.T.C., but it will be an independent formation. Accommodation for technical purposes is being provided in buildings now in the course of erection near Scroope House, but these are not likely to be in use until Lent term. It is hoped to arrange for instruction of some kind to be given during the Michaelmas term.

The Air Minister at Norwich.

In the course of his tour of industrial towns the Secretary of State for Air visited Norwich on Oct. 20. He addressed a meeting at which Mr. A. J. Cobham was describing his flight to India and back.

Sir Samuel Hoare said that Norwich was a particularly interesting city from the point of view of air defence because it was the home of a firm who had been experimenting since 1917 with the all steel construction of aircraft.

He then said :—

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craft, equal quotations a
there does not exist at presen
experience, and skilled *personnel*
the country. It seems desirable, the
orders during these development years to
gaged on all-metal construction on sound lines
maintain a large enough nucleus of machinery an
rapid expansion, if necessary, even though on a limited bas
per all-metal aeroplane is not comparable with that of wooden aircraft.

Sir Samuel Hoare went on to say that Civil flying had been greatly impeded by the post-war division of Europe into two camps. It was satisfactory to know that an analysis of French, German and American figures showed that British Air Lines were the most economically operated of any.

Speaking of the development of airships, Sir Samuel Hoare said that the R.33 was an old airship being used for experiment and research. Its flights were the outward and visible sign of the care that was being taken and the experience that was being gained for the two much bigger airships that it was intended to build as part of the Empire Air Policy.

Service Co-operation.

Speaking at the Annual Dinner of the Royal Marines Old Comrades' Association on Oct. 24, Sir Samuel Hoare, Secretary of State for Air, said that many of the best officers in the Royal Air Force had been officers in the Royal Marines. The excellent relations which existed between the Royal Marines and the Royal Air Force were an example of the spirit that should exist between all three fighting Services. Each had something which it could contribute to the good of the other. The scope and importance of the new problem of defence was not fully understood, and it would take time before the country adequately realised the changes which were daily taking place in dealing with this difficult question.

As long as he had anything to do with the Air Ministry it would be his aim to improve the relations between the three Services, and to make them as cordial and as close as he possibly could. A great many of the differences that were assumed to exist between the three Services vanished the further one got from London. In the garrison towns and at foreign stations he had found all three services working in the most complete and cordial co-operation.

In the course of his speech Sir Samuel Hoare told the story of the Arab Sheikh who was thrown out of an overturned Ford while crossing a bad patch of ground in Transjordánia, and picking himself up apologised for not being able to ride one better.

The R.A.F. Memorial Fund.

A Meeting of the Executive Committee of the above Fun
was held at the Offices, No. 7, Iddesleigh House, Caxto
Street, London, S.W.1, on Oct. 21. Lord Hugh Cecil was
the Chair and there was a very full attendance of Membe
of the Committee.

The Committee approved of the issue of Grants made by t
Grants Sub-Committee and the Secretary between the period July
to date, and which amounted in all to £1,626 11s. 2d.

Air Marshal Sir John Salmond, Chairman of the Vanbrugh Cas
School Sub-Committee, obtained the sanction of the Executive Co
mittee for the expenditure of a sum of money for improving t
School as regards the provision of a Sick Bay, a new Class Room a
a Fire Staircase. The School is at present full, forty boys being
attendance.

It was reported that between July 1 and the date of the Meeting, t
Grants Sub-Committee, of which Lieut.-Comdr. H. E. Perrin is Cha
man, had dealt with at their Meetings 120 cases, and that in t
same period the Secretary had dealt with 94 cases.

Three applications for assistance in an educational sense from t
Salting Benefaction were put forward and recommended by the Gra
Sub-Committee, and were approved by the Executive Committee.

As in the past two years the Committee authorised the purchase
a wreath to be placed at the foot of the R.A.F. War Memorial
Victoria Embankment on Armistice Day, and it is hoped that t
Staff, Air Chief Marshal Sir H. M. Trenchard, wi
irs, perform this ceremony.
h National War Memorial, which is bei
Scots of all Services who fell
ice to the R.A.F. Bay, t
was proceeding and t
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A very clean
ssed, althoug
an unfortunate accident to T. H. Cable, the F.A. half-bac
who in colliding with Flg. Off. Dickson, received a cut abo
his right eye just before half-time, which debarred him fro
taking any further part in the game.

The F.A. scored after five minutes' play, J. Blair, of Liverp
University, heading a good goal. The score was equalised by a ve
good kick from Kirk, a harding-working and clever player, who wou
do better still if he could complete all the advantages he mak
for himself. He was a little handicapped by the slippery grou

Underhill, having been injured before the first match, made
first appearance in the team this season, giving a display which mu
rank him as one of the best players on the side. When he h
completely recovered from his injury and become by a little judicio
training quite fit, he should have little difficulty in keeping
place in the team.

Flt. Sjt. Fretwell (improving every game) played his best game t
season, kicking well without making one mistake.

Flg. Off. Dickson was concerned in a further collision, this ti
with one of his own side, which, severely stunning him, resulted
the F.A.'s second goal.

The next match is on Oct. 31, *versus* Tottenham Hotsp
at Tottenham. It is hoped by the Committee of t
R.A.F.F.A. that all officers, airmen and friends, convenient
situated, will take the opportunity of seeing the Royal A
Force Team play. The time of the Kick-off is 3 p.
Ungerground station to Finsbury Park, 'Bus No. 39.

Hockey.

The following fixtures have been arranged by the R.A.
Hockey Association :—Trials, South v. Tulse Hill "A," O
17 (away). North v. Tulse Hill "A," Nov. 14 (home). Nor
v. South, Jan. 16.

Representative matches : Jan. 20, v. Tulse Hill (Uxbridg
Jan. 27, v. Royal Engineers (Halton). Feb. 3, v. Oxford U
versity (away). Feb. 6, v. Staff College, Camberley (awa
Feb. 10, v. Eastern Counties (Uxbridge). Feb. 20, v. Ci
Service (away). Feb. 24, v. Middlesex (Halton). Mar. 3,
Royal Navy (Uxbridge).

The date of the match against the Army has not yet be
arranged.

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THE THIRD PRAGUE AVIATION MEETING.



A NEAT MEDIUM-LIGHT AEROPLANE.—The Avia B.H.10 (60 h.p. Walter engine) which, piloted by Mr. Bican, made a speed of 181 km.p.hr. (112 m.p.hr.) over 200 kms. at the Prague Aviation Meeting.

On Sept. 20, the 3rd Aviation Meeting organised by the League of Czecho-Slovakian Pilots, was held at Kbely Aerodrome, Prague.

Over 50,000 people were present to watch the flying, including Prince Carol of Roumania, Comte de la Vaulx, Col. M. O'Gorman, and other members of the F.A.I. Congress, which was in conference at Prague at the time.

All races were over a standard triangular course of 100 kms. to be covered twice without alighting, making a total distance of 200 kms.

The meeting opened in the morning with a speed contest for aircraft carrying 500 kgs. of useful load. This was won by an Aero 12 (240 h.p. Walter engine), at a speed of 195.8 km.p.h. (121.5 m.p.h.).

The second contest was for aircraft carrying 250 kgs. This was won by Dr. Lhota on a standard Avia B.H.21 single-seater fighter, fitted with a boosted 300-380 h.p. Hispano-Suiza engine with a speed of 258 km.p.h. (160 m.p.h.). Capt. Kalla, on an S.20, also a single-seater fighter, but fitted with racing wings of small area and a boosted 380 h.p. Hispano-Suiza engine, was second, at 251 km.p.h. (155.8 m.p.h.). Third place went to another Avia B.H.21, piloted by Mr. Merhout. This machine, a perfectly standard Army single-seater fighter, completed the course at a speed of 239.5 km.p.h. (148.7 m.p.h.).

At 14.00 hours a race for sporting aircraft under 100 h.p. over the 200 km. course, attracted a number of Avia B.H.10 and Avia B.H.11 single and two-seater monoplanes, all fitted with the 60 h.p. Walter engine. Capt. Hamsik, on a B.H.10 single-seater school machine, was first, at a speed of 171 km.p.h. (106 m.p.h.), with Messrs. Janhuber and Bartos second and third on similar machines, at speeds of 163.52 km.p.h. (101.54 m.p.h.) and 163.48 km.p.h. (101.52 m.p.h.) respectively. Mr. Cinibulk was fourth, on a B.H.11 two-seater school machine, at 158.96 km.p.h. (98.7 m.p.h.). Mr. Bican, on a B.H.10, made a speed of 181 km.p.h. (112.4 m.p.h.), but was disqualified for having turned on a point too closely in a way which seemed to the timekeepers not to comply with the rules. Notwithstanding, his time was approved as correct for the distance.

At 16.00 hours the race for the Trophy of the President of the Republic was started. All entrants had to have a speed of at least 260 km.p.h. (161.5 m.p.h.) for the Trophy and 270 km.p.h. (167.6 m.p.h.) for the prize of 100,000 crowns. Two Avia B.H.21 machines opened the race, followed closely by an S.8, fitted with a 450 h.p. Napier Lion engine. After this latter machine had completed one lap of 100 kms. at 291 km.p.h., Mr. Fritsch, on an Avia B.H.21R. started, but returned after a few minutes with engine trouble. While he was attending to his engine, Mr. Beles, on the S.8, completed the course at an average speed of 295 km.p.h. (183 m.p.h.). Fritsch started again, and covered his first lap at 299.8 km.p.h., and, after a steep turn, continued with a still better speed, to cover his second lap at 301.3 km.p.h., making an average speed over the 200 kms. of 300.5 km.p.h. (186.6 m.p.h.), thus winning the Trophy and money prize. The Avia B.H.21R. is a single-seater B.H.21, fitted with special racing wings of reduced area, Lamblin wing radiators, a 380 h.p. boosted Hispano-Suiza engine, and a Reed duralumin airscrew.

Messrs. Benes and Hajn (from whom are derived the type-letters B.H.) deserve every congratulation on the fine performances of the aeroplanes of their design. Both are quite young and only began designing since the War 1914-18.

Forty-five machines were entered for the various contests, and with the exception of the contest for aircraft carrying 500 km. useful load, all the races were won by Avia aircraft. In the morning Dr. Lhota very nearly equalled the World's record for aircraft carrying 250 kgs., and in the afternoon the Avia monoplanes, in the race for sports aircraft under 100 h.p., all put up better times than the winner of the similar race of last year. Finally the victory of the Avia B.H.21R., in the President's Trophy Race, is particularly noteworthy. The World's speed record over 200 kms. is held by M. Sadi Lecointe, on a machine fitted with a 500-600 h.p. engine, at 313 km.p.h., only 13 km. faster than the speed put up by Mr. Fritsch on the B.H.21R., which is not a special racing machine, but an adapted single-seater produced in quantity for the Army Air Service.

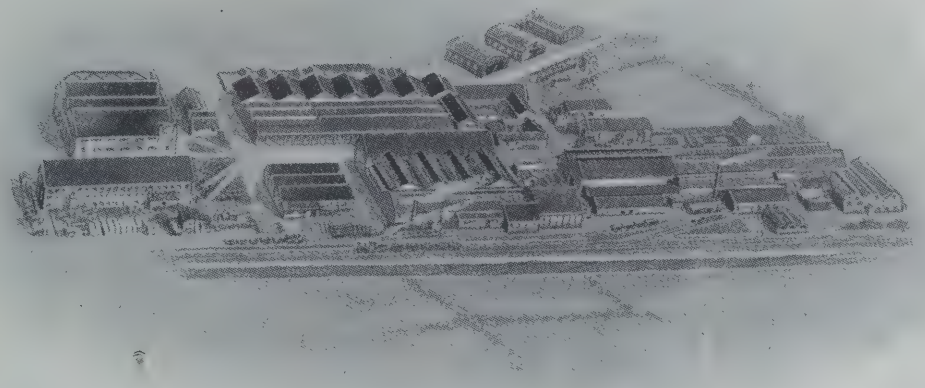


THE FASTEST CZECHO-SLOVAK AEROPLANE.—The Avia B.H.21R. (380 h.p. Hispano-Suiza engine), the winner of the President of the Republic's Speed Prize at a speed of 300.5 km.p.hr. (186.6 m.p.hr.).

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THE LIGHT AEROPLANE CLUBS.

The Cost of Flying.

The Birmingham Daily Post of October 15 publishes some correspondence in which "a young Birmingham man, a flying enthusiast," tries to make out that the charges of the Midland Aero Club are too high. He says that they charge £20 to £30 for flying tuition and 30s. an hour for aeroplane hire to qualified pilots. Also he suggests that the only solution to the difficulty is "to approach the makers of machines such as the Albatross and Siemens Halke" (presumably he means the Albatros aeroplane, but the Siemens Halske is an engine and not an aeroplane) which he says are obtainable at reasonable prices and whose maintenance charges are very moderate.

He regrets that "while the Government and newspapers talk lucidly of the need for getting young Britain into the air the mass of young Britishers should be discouraged from taking part in flying and their only hope lies in securing German help."

One may point out to the aforesaid young Birmingham man that he is not at all likely to be able to maintain even the cheapest of German aeroplanes and pay for its housing for anything like 30s. an hour in the air. And if he cannot fly already he is not likely to find anybody who will instruct him for less than a £20 fee. On the other hand the Birmingham Aero Club is not only willing to instruct him for that sum but also to supply the aeroplane and the necessary fuel and oil and the mechanics necessary to maintain the machine in flying order.

Apart from that the objector forgets that it is impossible for anybody to get an airworthiness certificate for a foreign aeroplane, because all aircraft flown in this country must have their design, material and workmanship passed by the Air Ministry before they can be flown outside of a three-mile radius from their aerodrome.

As the Secretary of the Midland Aero Club points out in his reply, not very long ago any of the regular flying schools charged £200 for tuition up to the point of getting the Royal Aero Club certificate, which itself is useless without the Air Ministry's certificate allowing a pilot to fly across country. To-day the flying schools have managed to cut down their fee at £75, at which figure they can certainly not show anything like a commercial profit. Consequently anything between £20 and £30 for tuition in flying is astonishingly cheap.

The London Aeroplane Club charges 30s. an hour for tuition and reckons on ten hours' dual control flying, which means £15 before a pilot is fit to fly alone. And then they reckon on a couple of hours of solo flying at £1 an hour before a man is fit to take his certificate. Consequently anybody who is at all slow in learning will certainly spend more than £20 in dual control flying alone. On the whole therefore one cannot see that the young Birmingham man has any cause for complaint.

The London Aeroplane Club.

Owing to the unfavourable weather during the past week flying has only been possible in short periods on three days. The following Members were under instruction :—

S. O. Bradshaw, G. H. Craig, R. V. Banks, Major Beaumont, H. R. Thomas Mrs. Elliott-Lynn (solo), A. R. Ogston, L. E. Vincent, C. E. Murrell, G. N. Warwick (solo), N. J. Hulbert (solo), D. P. H. Esher, N. Jones, T. W. Heath, C. E. Pitman, Commandant M. S. Allen, Miss H. B. Tagart, J. Barros, G. S. Brough, G. W. Quirk, R. P. Cooper.

On Sunday, Oct. 18, Mrs. Elliott-Lynn flew sola for the first time and made some excellent landings.

On Saturday, Oct. 24, the Director of Civil Aviation, Sir Sefton Brancker, visited the Club at Stag Lane Aerodrome and discussed with the officials and the pilot instructors the question of upkeep and running expenses. During his stay of nearly two hours, Sir Sefton Brancker saw several members taken up for flying instruction.

The total flying time for the week was 13 hours.

The Newcastle-upon-Tyne Aero Club Ltd.

There has been another almost blank week. Owing to the illness of Mr. Harrison, only about two hours' flying has been put in, by Mr. Baxter Ellis.

Major S. A. Packman is now with us as Instructor and we are hoping for better things from now onwards.

There has been no trouble of any description with either machine. No. 1 has been fitted with the new type of intake pipe which greatly improves the running of the engine.

The inauguration ceremony will be held on Nov. 21, when His Grace the Duke of Northumberland will preside. It is hoped to complete arrangements during this week.

The Lancashire Aero Club

One of the oldest and most respected customs in the flying world, a custom which comes very near to being a law of etiquette, is the one which forbids pilots ever to be in time for an appointment. Anyone who has had anything to do with flying knows that pilots are always late. The experienced expect to wait, it has always been so, a great and established tradition. Therefore when the writer of these notes arranged to meet Mr. Cantrill and Mr. Scholes—the Club's Instructors—at 1.30 p.m. at Woodford Aerodrome on Wednesday, Oct. 21, naturally the writer decided to catch the 1.50 from Manchester The writer has been hanging around aerodromes since 1911 and full understands the proper etiquette of appointments with pilots. H has waited for almost all the best pilots in the country.

However, not being too clever with an *A.B.C.* a small s opposit the 1.50 train (arriving Woodford 2.20) escaped notice, and arriva at the station proved that the 1.30 did not run. To be brief, the write arrived at Woodford about 3 o'clock. Outside the station was M Lacayo—the Club's leading solo flyer—struggling with a burst tyr Assistance given with the tyre, a lift is offered and accepted. Goin down the lane to the aerodrome Lacayo, who also had an appoin ment with the Instructors for 1.30, glanced at his watch: "Hal past three, just nice time, I bet they haven't come yet."

Mr. Lacayo, it will be seen, is also an old hand.

Now by some unexplained miracle the Instructors had been a the aerodrome at 1 30 and were inclined to be somewhat unkind i their remarks. The writer did not deign to reply. Argument useless with people who do not know the first rule of polite society It is a sad thing to see the old customs, the manners of a finer ag being disregarded. Pilots on time, be Gad!

"LR" still being out of action Mr. Scholes had taken "LV" int the air at two o'clock for a short test flight. After which A. Goo fellow made a solo flight of fifteen min. Mr. Goodfellow is a ver clever pilot and does some of the prettiest flying seen at Woodford.

Mr. Cantrill took "LV" up with S. Goodfellow as a passenger an showed that she is now quite back in her old form. S. Crabtre then had a thirty min. instruction flight with Mr. Scholes. As soo as they came down Mr. Lacayo took over and did twenty min. sol

Mr. Lacayo and Mr. Goodfellow are busy filling up solo time i preparation for their "A" Licences and miss no opportunity.

J. Leeming did 25 min., and finally A. Goodfellow went up an used the last few moments of daylight. Machine safely in th hangar at 5.5 p.m.

On Saturday, Oct. 24, the weather for flying was excellent. U fortunately "LR" was still out of service owing to cylinder hea trouble. One of the Instructors, Mr. Scholes, was away at the A Ministry. A test flight was made by Mr. Cantrill at 2 p.m., who the took A. Nickelson for 25 min. dual. After which J. Hall had h first instruction. Mr. Hall shaped so well that the Instructor fee he must have been having lessons elsewhere—it will be interestin to watch Mr. Hall's progress.

A. Goodyear came next with a "dual" of 20 min After this fligh Mr. Cantrill decided to have a rest and Mr. Lacayo put in a 15 mi solo.

The remaining flights were all instruction, the pupils being: H. Stern, 15 min.; A. Colley, 10 min.; H. Thomas, 15 min.

On Sunday after the usual test Mr. Cantrill gave A Colley some mo "dual" and then O. Groves had a brief instruction. Mr. Grov then set out for his first solo on a Moth. After he had been in th air about 5 min. the exhaust pipe came adrift and he was force to land. He made a good landing and succeeded in reaching th aerodrome.

The repairs to the exhaust pipe were done by Mr. Goodyear whi the other members had lunch. Mr. Goodyear has just taken h ground engineer's certificate on Cirrus engines and as at the mome the Club is without a paid ground-man Mr. Goodyear's help is muc appreciated

At 2.30 flying was resumed. 5 min. test flight, 10 min. "dual Goodyear. 5 min. "dual" O. Groves, After which Mr. Grov went solus for 10 min. The following then had instruction fligh with Mr. Cantrill:—T. Prince, 20 min.; H. Stern, 10 min.; T. Ha 15 min.; R. Williams, 20 min. Mr. Lacayo and Mr. D. Salthouse mad solo flights of 20 min. each.

THE INTERNATIONAL COMMISSION ON AERIAL NAVIGATION.

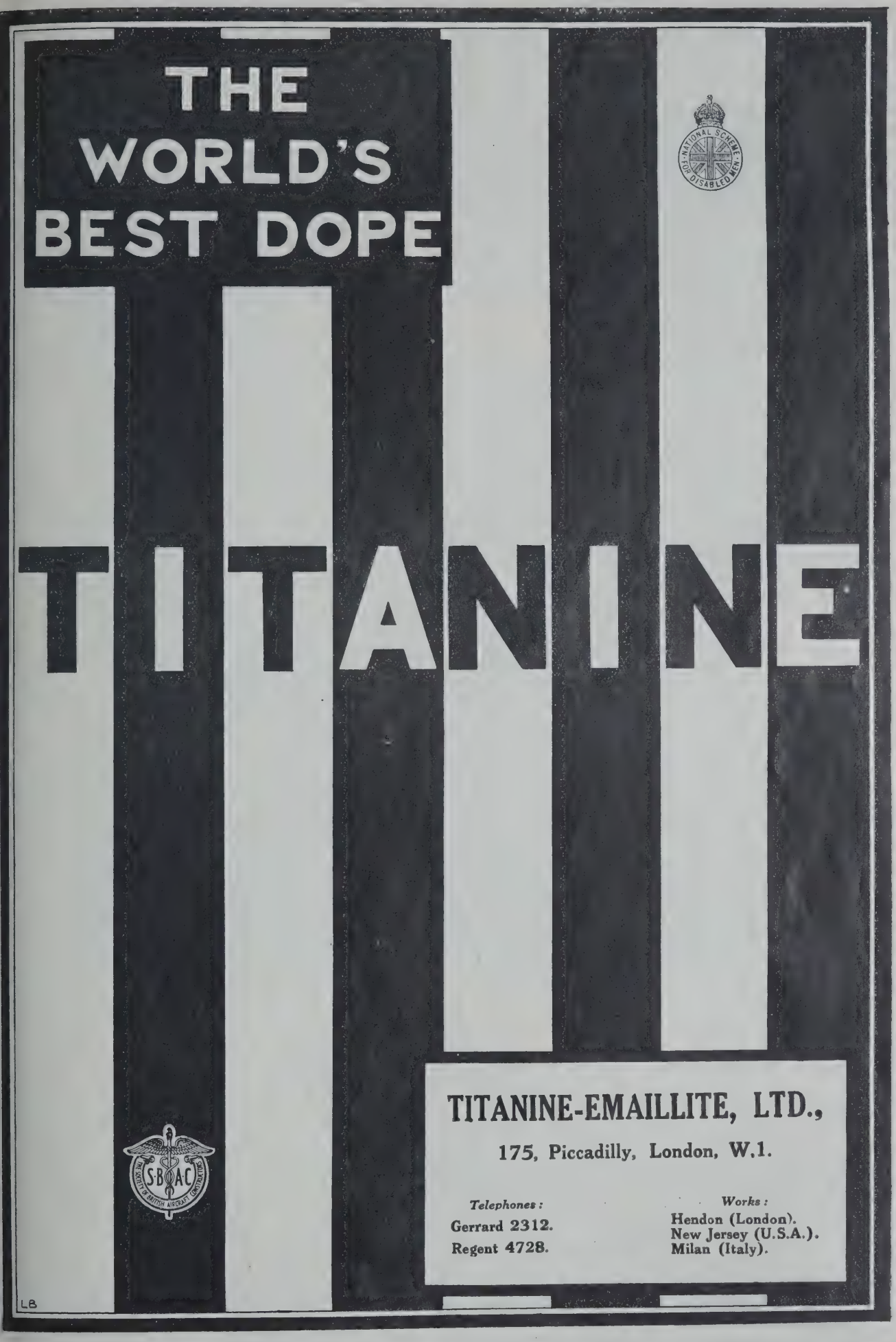
The International Commission on Aerial Navigation, whic has been sitting at Brussels is—unlike the International Co gress held at the same place—a definite and official organis tion, instituted under the International Convention for th periodic discussion and revision of the terms of that agre ment. It is attended only by accredited representatives the countries adhering to the Convention itself, and its pr ceedings are private, though the results—if any—natural become public property.

The most important subject under discussion at the prese meeting has been the proposed Protocol to annul Article of the original Convention. Article 5 prohibits the passag over the territories of adhering nations of German aircraf and this article was the cause of the refusal of the majorit of neutral nations to adhere to the original Convention, an as well of Germany's refusal to permit the passage ov her territory of Allied Civil Aircraft. The Protocol permi signatories to the Convention to come to their own terms wit Germany in this matter, and its adoption by all concerne will open the way to operation of trans-European air rout which may prove to be of real commercial value.

It is stated that only the ratification of Jugo-Slavia is r quired to bring the Protocol into force, and that no objectio has been raised by this State.

Other subjects under discussion have been the institutio of international Certificates of Airworthiness under standa conditions, and the standardisation of medical requiremen for pilots' licences.

In addition a signal code for general use in connection wi meteorological information has been compiled.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

WHAT IS WRONG WITH BRITISH CIVIL AVIATION?

The Annual Report on the Progress of Civil Aviation, 1924/25, made to the Secretary of State for Air by the Director of Civil Aviation, and published by H.M. Stationery Office on Sept. 30, just antedates the paper read by Air Vice-Marshal Sir Sefton Brancker on Oct. 1, which, it may be recollected, had for its text the lack of progress in Commercial Aviation during the past six years. Despite the fact that the Report is an official document signed by an important Government servant, and the paper aforementioned is an expression of opinion of a purely personal nature by a distinguished Fellow of the Royal Aeronautical Society, it is inevitable that the two documents should in part deal with the same subject matter, and there are strong reasons for believing that the the author of each publication holds views not altogether opposed to those of the author of the other.

Under the circumstances it is not altogether illegitimate to consider the official report in the light of the unofficial paper—or vice versa. The paper has already been reported at some length.

The Report contains a good deal of matter of no direct bearing upon British Aviation.

In regard to internal politics, the report states that a long term agreement with Imperial Airways having given that firm freedom to develop their own policy for the expansion of British Air Services, it was considered that no necessity existed for continuing the Civil Aviation Advisory Board, which was accordingly dissolved in July last. Thus the official view appears to be that the activities of Imperial Airways cover the whole field of British Civil Aviation, worthy of official consideration.

Commercial Services of Various Kinds.

Under the heading "Commercial Air Services," the first sub-head is Imperial Airways Ltd. It appears therefore that the Director of Civil Aviation agrees with Sir Sefton Brancker that Imperial Airways is a commercial concern. Concerning their actual operations little is said in this section except a month by month statement of mileage flown. A good deal more however can be discovered in the statistical appendices.

The operations of Northern Air Lines between Stranraer and Belfast during the spring of this year are briefly mentioned. This service was in regular operation for a few days only prior to the end of the period covered by this report.

The De Havilland Hire Service showed a decrease in activity as compared to the previous year—largely due to singularly unpleasant flying weather, and also to the decision of the company not to undertake "temporary regular" air services, such as were carried out in previous years. This decline is counterbalanced by the activities of the De Havilland School of Flying.

The Savage Skywriting Company carried out a contract calling for 400 demonstrations, covering every important city and town in England, Scotland and Wales. This occupied five machines. The firm flew for 300 hours in Great Britain, 300 hours in the U.S., and some 200 hours in Scandinavia, Canada and Cuba.

From the mention of these last three concerns it appears that the Director of Civil Aviation recognises that there are branches of Commercial Aviation not covered by the activities of subsidised air lines.

The flight to India undertaken by the Director of Civil Aviation to survey the route to India is mentioned briefly, with the conclusion that, technically, an aeroplane service to India is feasible, and that except for the Taurus and Lebanon ranges, the route from London to Rangoon presents extraordinarily favourable physical conditions for regular flying, even in bad weather.

This conclusion may be commended to the notice of the author of the paper before the Aeronautical Society, as a hint that perhaps the non-success of past efforts to make civil aviation pay have more to do with the routes adopted than with the defects of the aeroplane.

Air Survey and Photography.

Aerial Survey is given its own heading. In this country aerial photography so far has been confined to small mosaics and individual photographs for commercial purposes. The Aircraft Operating Co. Ltd., which has taken over Aerofilms Ltd., carried out 120 hours' photographic flying in 1924/25. The work, including the making of rectified mosaics of a country estate and of a congested town area in Southampton. Progress photographs, particularly in connection with new roads, have been much in demand, and the company has also supplied many photographs for industrial planning and publicity purposes. An interesting new feature is the series of educational photographs for the teaching of industrial geography.

The formation of the Air Survey Company to carry on the work started by Mr. R. C. Kemp with the survey of the Irrawaddy Delta, and the continued operations of this firm are recorded.

The Central Aerophoto Co. Ltd., and Surrey Flying Services Ltd., both report increased demands for aerial photographs. The first-named firm find this specially in connection with a demand for photographs showing developments of works from year to year. The demand for this class of photograph shows signs of having become a regular trade and not of being still in the experimental stage.

The Director of Civil Aviation does not specifically class aerial photography as commercial aviation, though he appears to recognise its commercial affinities. This branch of business should be brought before Sir Sefton Brancker, as showing that work does exist which the present imperfect aeroplane is capable of undertaking without subsidising and obviously at no prohibitive cost.

The Light Aeroplane Club movements is duly noted. The work of the clubs had not begun at the end of 1924/25.

The training of officers for the R.A.F. Reserve is carried out in civil schools and is therefore subject for comment. In the period in question 335 officers were trained at the five existing schools.

Airships appear again in the report—which however gives no information that is not already well known to readers of this paper.

Finance.

Estimates for 1925/26 provide for a gross expenditure on Civil Aviation of £369,500, offset by receipts estimated at £12,500, leaving a net expenditure of £357,000.

Staff and maintenance of civil aerodromes account for £35,000, air routes and surveys for £37,000, £12,000 for technical equipment, £123,000 for works, building and lands—£50,000 for the reconstruction of Croydon, and £29,800 for the diversion of Plough Lane in connection therewith. £159,500 goes in subsidies—£137,000 to Imperial Airways and £22,500 to light aeroplane clubs. In addition, £15,662 is the estimated cost of the headquarters staff of the Directorate of Civil Aviation.

A table giving the number of new licences and certificates issued during the year, and of those current at Mar. 31 last is not uninteresting. Forty new licences for pilots were taken out, and 140 were current at the end of the period. Two new navigation licences were issued, and three were current. Ninety new ground-engineer licences were issued, 294 were current. (As one individual may hold more than one licence under different categories, this is no index to the number of individuals licensed.)

Eighty new heavier-than-air and two new lighter-than-air registrations occurred; 184 heavier and seven lighter than air registrations were current. One hundred and twenty-eight new certificates of airworthiness for aeroplanes and one for airships were granted, 186 C. of As. for aeroplanes, and one for an airship were current.

The large proportion of new to current C. of As. is interesting and hopeful—the fact that there are fewer licensed pilots than airworthy aircraft is interesting and a little curious.

Organisation and Research.

It is recorded that a considerable amount of experimental bearing on the equipment of the London-Continental route for night flying, was carried out during the year.

Fog landing has also received attention. The use of a captive balloon has permitted comparison of the values of different lighting systems being undertaken in foggy weather. This has led to the conclusion that Neon lighting gives the best aid to locating the aerodrome in fog. Acoustic methods of helping aircraft to land have been studied by the Signals Experimental Department, Royal Engineers. The method shows promise but has not yet reached the stage of practical use.

The production of aeronautical maps under the International scheme has been stopped in this country owing to the small demand for the maps and the fact that other parties to the International Convention have not done their share of the work. Five general sheets (Britain, Balkans, Egypt, Iraq and Oman) have been published and three others (Kurdistan, Yemen and Baluchistan), are nearly complete. A strip map of the London-Paris route on a scale of 1/500,000 is nearly complete and will be published.

Under the heading Technical Services the report alludes to many of those problems which Sir Sefton Brancker's paper so strongly stressed. Work has been done towards defining the minimum flying requirements for civil aircraft. Definite requirements as regards take-off and landing have been formulated and are now operative for land machines. Experiments are proceeding to accumulate data as to minimum stability and controllability which may eventually be required. Progress has been made in metal construction and designs are

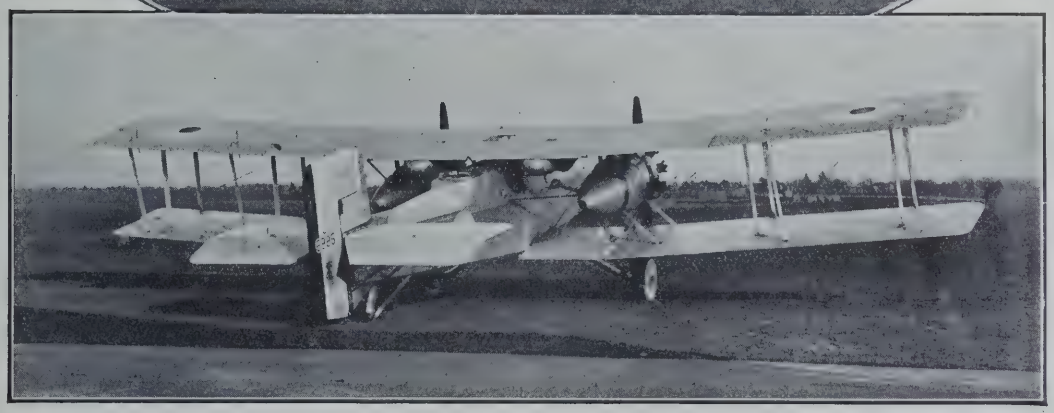


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available for metal aeroplanes up to any size likely to be required for some years.

A great deal of attention has been given to the attainment of control at and beyond the stall. A method of control (slot and aileron, presumably) has been devised which when fully developed will minimise the danger of involuntary stall close to the ground. Experiments proceed on engine silencing, cabin heating and ventilation, but progress is slow and no definite conclusions have been reached.

Experiments with sleeve valve engines continue and promise to lead to satisfactory results in regard to reliability. A complete aero-engine of this type and 450 h.p. is almost ready for bench test. Experimental single cylinders of this type up to 8¼-in. bore have given no trouble and even larger bores are to be tested.

The compression-ignition heavy oil engine has been produced as a complete aero-engine which it is hoped will soon be tested in the air. Very little trouble has occurred with the injection system, such troubles as have occurred being mainly mechanical and caused by the high maximum pressures attained.

Two experimental civil machines were completed during the year, the Hamilton (Handley Page W.8.f three engines) and the Andover (Converted Avro Ambulance). Machines of the following types were under construction :—

For European transport, the D.H.54 and a Handley Pag which is said to be fitted with three Bristol Lucifer engines

For Middle East transport two types were in progres One by Armstrong-Whitworth (the Argosy-three Armstron Siddeley Jaguars) and one by A. V. Roe with three Brist Jupiters. In addition, Beardmores are building an all-met three-engined monoplane. Designed primarily to test particular form of metal construction it is also designed comply with the requirements of Middle East transport a will be comparable with the other types for this purpose.

Two new types of seaplane for civil duty were completed this period—the Supermarine Swan and the Fairey Fre mantle. These are to be operated experimentally by Imperi Airways.

New types, to be ordered during 1925/26, are under co sideration. These include a freight carrier to have a pa load of 8½ lbs./h.p. on the London-Paris route; a sma short stage boat seaplane with two Armstrong-Siddeley Lyn engines, and a large sea-going boat seaplane with three Roll Royce Condors to carry 30 passengers 500 miles.

(To be continued.)

SENOR DE LA CIERVA AT THE R.Ae.S.

The paper by Senor de la Cierva on the Auto-Giro, read before the Royal Aeronautical Society on Thursday, Oct. 22, attracted by far the largest audience that has been seen at any of the Society's meetings within the memory of man. Considering the very short notice of this meeting which was given to the public, the result is extremely encouraging. It proves that the R.Ae.S can draw adequate audiences provided that papers of real interest are provided.

Senor de la Cierva's paper was an exceptional event, for the Auto-Giro is in fact the first of an entirely new type of aircraft to achieve sustained flight under real control, and the achievement in this respect ranks second only to the work of the Wright Brothers in making the first controlled man-lifting aeroplane.

Senor de la Cierva unfortunately does not speak English sufficiently well to have read his own paper. He did, however, address the audience in French, thanking the Royal Aeronautical Society for the honour done to him in asking him to read this paper, and the British authorities, the Press and the public for the courtesy which had been extended to him in this country. He also paid tribute to Mr. Frank Courtney for having so ably stepped into the breach resulting from the illness of the Spanish pilot who was to have carried out the British demonstration.

Thereafter the paper proper translated into English was read by Sir Sefton Brancker.

Senor de la Cierva began experiments in aeronautics as long ago as 1911. In conjunction with his brother he built a number of gliders, and sustained a number of dangerous accidents—all of them the result of loss of flying speed or stalling. Later, in 1918, Senor de la Cierva designed and built a large three-engined aeroplane which after having given very promising results on test was completely destroyed as the result of a stall. These events led him to the consideration of methods by which a heavier than air craft could be produced in which stability and control were not dependent upon the maintenance of a relatively high forward speed, or of a very restricted range of angle of incidence.

The idea of using a rotating vane as the supporting surface was considered to afford promise of securing the desired result. In the first place it was proposed to overcome the difficulties of asymmetry of lift on the single vane by employing two vanes of opposite rotation on the same axis. The first Auto-Giro was built upon this principle. On taxying trials it was found that although the upper of the two vanes actually rotated at a speed in accordance with the designer's calculations, the lower vane rotated at only 2/3 of that speed, and therefore balance could obviously not be secured. It would have been possible to introduce gearing to enforce equal rotational speeds, but this was felt to be an undesirable complication.

Investigation of the problem by the blade element theory of airscrews led to a belief that a single vane system could be designed which should give practically a fixed position of resultant lift, and a second machine was designed embodying such a vane, with a control operated by the pilot which varied the incidence of the blades. This machine failed by invariably swinging over to one side.

Another type was produced with similar vanes and a lateral control intended to tilt the axis of the vanes as a whole. Tests on the ground showed that the pilot could not exert sufficient force to operate this control with the vanes rotating owing to the large gyroscopic effect.

A further type was then built with fixed vanes and with a lateral control consisting of split elevators which could be used as ailerons. This control was insufficient to overcome the tendency to swing to one side and side-slip. The u expectedly large unbalanced moments were thought to due to torsional distortion of the vanes and therefore new system with heavily braced vanes was produced. T out of balance moments were still beyond control, and final the idea of the freely hinged vanes as now employed w adopted. This was embodied in the fifth type of Auto-Gi produced (one believes) in 1923, and led to almost immedia success. After successful trials of this fifth type, the Spani Government were sufficiently impressed to arrange for t construction of a further improved type of Auto-Giro in t Spanish Army Air Service workshops at Quatro Vientos, a it is this type which has now been demonstrated in th country.

Altogether six different types of vane supported aircra involving some 32 buildings and rebuildings, have been nece sary to achieve the present result—a record of perseveran on the part of Senor de la Cierva which may be commend to the attention of certain of our pessimists.

The lecture was illustrated by slides showing all the s types of Auto-Giro, and was followed by three films, o showing the first flights of the first of the pivoted va machines, and two showing the present type, including so taken at Farnborough last week. Finally, a slow motion fi taken at Farnborough showed with greater clearness th is possible to the unaided view the movement of the van Unfortunately these films were marred in their effect by t persistent ill-behaviour of the projecting apparatus and fail to give as good an idea of the machine as they might ha done.

In the discussion which followed a number of techni questions were asked which will, it is hoped, eventua be answered in the Journal of the R.Ae.S. by the auth But as was natural and proper the speakers were unanimo in their expressions of admiration for the persistence a courage of Senor de la Cierva for the simplicity and genuity of the result finally attained, and for the fact th all the tests which had already been made amply corroborat every claim which he had made for the Auto-Giro.

THE INSTITUTION OF AERONAUTICAL ENGINEER

FIXTURES 1925-1926.

1925.—Oct. 27.—Paper by Dr. A. P. Thurston on "The Brus Congress, 1925."

Nov. 10.— Paper by Mr. M. L. Bramson, A.C.G.I. (Member), "Practical Flying."

Nov. 28.—Visit to the Shipping, Engineering and Machinery Exh tion, Olympia, with a paper by Mr. R. J. Parrott, A.C.G.I. (Hono Member), on "Training Aircraft."

Dec. 15.—Paper by Mr. M. E. DeWoitine on "The Advantages of M Construction."

1926.—Jan. 12.—Paper by Mr. C. Howarth (Member) on "So Aspects of Full Scale Experiments."

Jan. 26.—Paper by Lieut. N. Olechnovitch (Member) on "The Care Maintenance of Tools as an Important Factor in Works Routine."

Feb. 9.—Informal meeting.

Feb. 23.—Paper by Mr. O. E. Simmonds, M.A., A.F.R.Ae.S. (Memb on "The Development of Civil Marine Aircraft."

Mar. 9.—Informal meeting.

Annual Meeting.

Apr. 13.—Paper by Mr. S. H. Evans, B.Sc. (Eng.), A.F.R.Ae.S (Associ Member), on "The Performance of Modern Aircraft (with spe reference to the Variable Wing)."

Apr. 21.—Visit to the Works of Messrs. D. Napier and Son, L Acton, W.3.

May 11.—Paper by Capt. W. H. Sayers (Honours Member) on " Modern Theory of Aerofoils and its application to Aeroplane Desig

May 19.—Visit to the National Physical Laboratory, Teddington.

June 12.—Visit to Croydon Aerodrome by courtesy of Messrs. Impe Airways Limited.

All lectures will be held at 6.30 p.m. in the Lecture Room of Junior Institution of Engineers, 39, Victoria Street, London, S.W.1.

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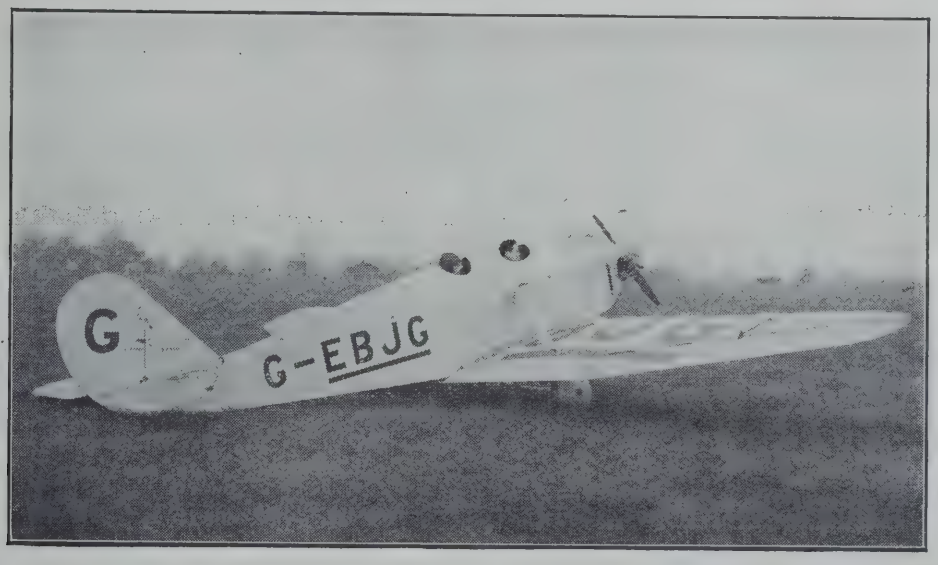
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THE HANDLEY PAGE HAMPSTEAD.

The Handley Page Hampstead—or W.9—is a new three-engined passenger carrier which has been produced for operation on the services of Imperial Airways. The Hampstead is derived like the earlier W.8f three-engined type from the well-known twin-engined W.8. In general arrangement and in many details these three types are very similar—in fact almost identical.

The Hampstead, however, is of slightly increased span as compared with the W.8 types, and the over-all length is very slightly longer than the two-engined types. Instead of one large engine in the centre and two smaller ones on the wings as in the W.8f, the new type has three engines of the same type and power. These engines are Armstrong Jaguars of 400 h.p. each, thus giving the machine a total of 1,200 h.p. as against 840 for the W.8f. The total weight and the pay load of the Hampstead are both appreciably greater than in the W.8f, but in the main the excess power is devoted to making it possible for the fully loaded machine to fly on any two engines and to be capable of a very slow descent on only one engine.

The two wing engines are mounted at the outer sides of vertical interplane struts on a kind of bracket supported by an inclined tube running upwards from the bottom of the vertical strut. The centre engine is carried from the nose of the fuselage structure.

All three engines are entirely uncowled, and are fitted with exhaust manifold and long exhaust pipes. Those from the side engines are brought in close to the body. The body—except for minor variations at the nose which result from the difference of engine—is similar to that of the W.8f and is rectangular in section. The section is practically uniform from some five feet ahead of the leading edge to about the same distance beyond the trailing edge. Forward both longerons slope towards the engine mounting. Aft, the top longerons remain straight to the tail, and the lower ones slope up from the end of the parallel section. Side by side seats are arranged ahead of the cabin for pilot and navigator. The cabin, which is immediately behind this cockpit, is 17 ft. 5 in. long, 4 ft. 5 in. wide and 5 ft. 10 in. high and has seats for fourteen and has a luggage rack over its whole length. A line of triplex glass windows runs along the whole length of each side and one half of these windows open by sliding. Over and above window ventilation positive ventilation is provided by air scoops feeding into the tubular rail of the luggage rack which acts as a distributor, and exhaust scoops at the after end. Hot air taken from a muff on the exhaust pipes of the centre engine is used to warm the cabin the degree of heating used being controlled from within the cabin.

The Hampstead has carried out its official trials, which included flights with one and two engines stopped. With full load at 2,000 ft. and any one engine stopped the climb is approximately 200 ft. (61 m.) per min. With one engine only running a rate of descent of 200 ft. per min. was observed, giving a slope of descent of about 1 in 20. This means a range of 7½ miles from 2,000 ft.—which should give ample choice of landing ground in the worst emergency.

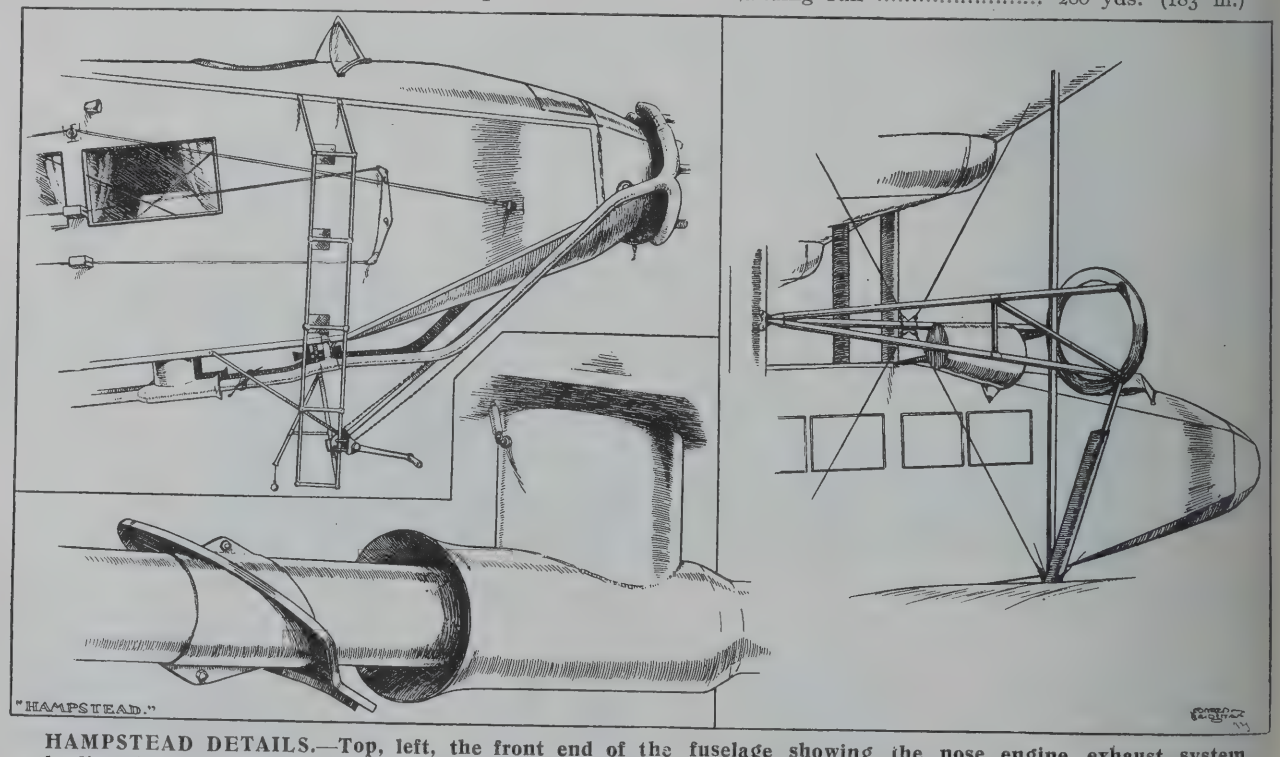
The whole design has been directed rather to securing the degree of safety and reliability which these figures indicate than to obtaining the maximum possible pay load for the total power installed. The total pay load actually is about 2.8 lbs./h.p.—a figure which compares favourably with that of other commercial machines already in service—a result which is distinctly creditable.

So far as present experience goes the Hampstead appears to mark a definite advance in the production of passenger carrying machines. Over and above the ability to fly with any engine stopped it has been found that the cabin is distinctly quieter than that of any previous machine with wing engines, and that the ventilating and heating appliances are extremely effective. Both these qualities are important as affecting the comfort of passengers—a very important matter if traffic is to be attracted in large volumes on European services. Frankly one believes that a good deal more must be done towards providing real comfort than has yet been done in this country, but the Hampstead at least goes some way along the right direction.

It is not to be expected that all the outstanding problems of successful air transport will be solved in any one new machine, or that even if they were so solved new and unforeseen ones would not arise. The Hampstead appears to have fulfilled all the hopes entertained for the three-engined type and to have secured other advantages as well, and the results attained by this type in service may be expected to prove highly interesting and satisfactory.

SPECIFICATION.

Span	79 ft. 0 in. (24.0 m.)
Length	60 ft. 4 in. (18.3 m.)
Height	16 ft. 9 in. (5.1 m.)
Wing area	1,540 sq. ft. (143 m.²)
Weight empty	8,840 lbs. (4,016 kg.)
Weight of crew	360 lbs. (164 kg.)
Weight of fuel and oil (4/5 hours)	1,910 lbs. (870 kg.)
Paying load :—	
Passengers (14)	2,240 lbs. (1,020 kg.)
Luggage and freight	1,150 lbs. (520 kg.)
Total	3,390 lbs. (1,540 kg.)
Total weight loaded	14,500 lbs. (6,590 kg.)
Wing loading	9.4 lbs./sq. ft. (46 kg./m.²)
Power loading	12.1 lbs./h.p. (5.5 kg./h.p.)
Max. speed at 1,000 ft. (305 m.)	116 m.p.h. (186 km.h.)
Landing speed	52 m.p.h. (83 km.h.)
Climb at ground	900 ft. (275 m.) per min.
Service ceiling	13,500 ft. (4,100 m.)
Take-off run	280 yds. (255 m.).
Landing run	200 yds. (183 m.)



HAMPSTEAD DETAILS.—Top, left, the front end of the fuselage showing the nose engine exhaust system leading down to the heater muffs for the cabin air, the pilot's ladder, and the chain-drive for the starting handle. Below, the exhaust muff with the baffle on the exhaust pipe which prevents rain from getting into the muff. On the right, one wing engine mounting with oil tank in situ.

The Schneider Cup Race.

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 17; Tuesday, 0; Wednesday, 14; Thursday, 6; Friday, 1; Saturday, 18; Sunday, 0.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 37, passengers 127, freight 14 tons.

AIR UNION:
Paris—London: Machines 9, passengers 37, freight 7½ tons.

K.L.M.:
Amsterdam—Rotterdam—London: Machines 8, passengers 25, freight 1½ tons.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES:

JAPANESE ARMY:
London—Brussels: Machines 2, passengers 2.

Total number of trips by British machines: 37, carrying 137 passengers. Foreign machines: 19, carrying 64 passengers.

Comparative Figures:

For week ending Oct. 25:
Machines, 56; Passengers, 191; Crews, 65; Total personnel, 256.

Corresponding week, 1924:
Machines, 73; Passengers, 307; Crews, 90; Total personnel, 397.

Corresponding week, 1923:
Machines, 49; Passengers, 116; Crews, 73; Total personnel, 189.

Corresponding week, 1922:
Machines, 82; Passengers, 355; Crews, 139; Total personnel, 494.

Corresponding week, 1921:
Machines, 57; Passengers, 134; Crews, 77; Total personnel, 211.

Corresponding week, 1920:
Machines, 111; Passengers, 192; Crews, 140; Total personnel, 332.

Croydon Notes.

The weather has been simply atrocious during the past week and on Tuesday all flying was held up by rain and fog.

The Handley Page Hampstead has been doing "Martlesham tests" at Croydon this week in the hands of Flt. Lt. Oddie one of the Farnborough test pilots. This is a practice that has long been advocated by THE AEROPLANE, and one is glad to see that the suggestion has at long last been adopted.

The Vickers Virginia was being tested on Saturday afternoon in readiness for the "banquet in the air" to be held on Tuesday of this week.

There has been a rumour at Croydon that the Air Ministry had decided to reject the Cierva Auto-Giro because they were afraid they would not be able to read the registration lettering on the planes as they go round so quickly. Though quite in keeping with the Air Ministry's way of thinking one believes *this* rumour to be untrue.

Owing to a chill, which makes one feel hate towards everyone, Croydon notes are somewhat attenuated.—G. D.

Under the Weather.

According to *The New York Times* "a sixty-five mile gale which made it necessary to peg airplanes on Mitchell Field down to earth with mooring ropes, and the recent lbn shrdlu cmfwyp cmfwyp caused yesterday (Oct. 10) the postponement of the Air Races until Monday (Oct. 12)."

Under these conditions the Racing Committee of the National Air Races had no alternative but to postpone the contests. It looks as though Baltimore has suffered from the effects of the same curious phenomenon.

In the same article it is said that "a few women who ventured out on the field were frequently blown before the wind desperately clutching their hats. One was bowled over."

Can this mark the introduction into the United States of the "bowler hat"?

Fire-proofing.

Samples have recently been received in this office of articles treated by the Neocellon flame-proofing process. These samples include pieces of paper, bits of straw and pieces of wood all of most inflammable nature. Applying a flame to any of these the material simply grills away and refuses to flame or even glow.

From the printed matter issued by the firm this Neocellon flame-proofing solution can be applied quite simply by users of inflammable material whether in large quantities or small. Thus it is equally applicable either to woodwork or fabric in large quantities or to the hearthrug in the humblest home. The makers of the solution are Neocellon Ltd., Garratt Lane, Wandsworth, S.W.18, who will be pleased to supply further information when requested.

Curtiss Engines for Great Britain.

According to *The Times*, Mr. C. R. Fairey, who is at prese in America, is signing a contract this week with the Curti Aeroplane and Motor Co for the delivery of a large numb of Curtiss D.12 engines. These engines are for installatio in the Fairey Fox, a number of which have been ordered b the Air Ministry for the Royal Air Force.

On landing in England these engines will be naturalise and will be known thereafter as the Fairey Felix aer engines.

This order represents the first large foreign order f modern American aero-engines.

Dornier Expansion.

The Dornier Metallbauten G.m.b.h., of Friedrichshafen, h purchased an estate near Altrenrhein, on the Swiss side Lake Constance (the Bodensee) in order to erect a large ai craft factory which will be free of the limitations imposed o the German factory. There is already one Swiss Dorni factory at Romanshorn, which is opposite Friedrichshafen.

PERSONAL NOTICES.

DEATHS.

BRUCE.—On Oct. 12, at Ismailia, Gertrude, the beloved wife Flg. Off. R. S Bruce, No. 208 (Army Co-operation) Sqdn., R.A.F.

CRIPPS.—On Oct. 21, at Abu-Sueir, Egypt, as the result of a flyi accident, Geoffrey Walter Cripps, Plt. Off., R.A.F.

Mr. Cripps entered the R.A.F. with a short service commission January, 1925, and was still under instruction at No. 4 F.T.S. the time of the accident.

KILNER.—On Oct. 20, at 16, Beaumont Street, W.1, Group Ca Cecil Francis Kilner ("Jo"), D.S.O., A.D.C., R.A.F., elder and on surviving son of the late William A. Kilner and Frances E. Kilner.

[There is no officer in the Royal Air Force whose death cou be more sincerely regretted than Jo Kilner. Possibly he had enemi in the Air Force. Any strong man who does his duty must mak enemies. But if he had any one has never met them. And everyo who served with him regarded him as a friend for life.

Cecil Francis Kilner, for some reason always known in the Servi as Jo Kilner, was born in 1883, the son of William Kilner of Kemsin Kent. He entered the Royal Marine Light Infantry in 1902 a became a Captain in 1913.

He was one of the earliest R.M.L.I. officers to join the Royal Nav Air Service, having qualified for his Royal Aero Club Certifica (No. 667) on Oct. 22, 1913, on a B.E. biplane at the Central Flyin School at Upavon.

As a Flight Commander in the R.N.A.S. he took part in the famo seaplane raid on Cuxhaven on Christmas Day, 1914, and was gazette to the Distinguished Service Order on Feb. 8, 1915. He did goo work as a Squadron Commander, R.N.A.S., and later as a Squadro Leader, R.A.F. He was mentioned several times in dispatches, a was given a Bar to his D.S.O. for his work in Gallipoli.

On August 1, 1919, he was promoted Wing Commander, and Grou Captain on January 1, 1924. On January 1, 1925, he was appointe Air Aide-de-Camp to the King.

In November, 1919, he was appointed to command No. 2 Scho of Technical Training (Boys) at Cranwell and on April, 1921, he w appointed to command the newly formed Boys' Wing.

In August, 1922, he became O.C. R.A.F. in H.M.S. *Argus* and April, 1924, he was appointed Chief Staff Officer to H.Q. Coast Area in which capacity he was serving when afflicted by the illne which caused his death.

Those junior officers who served under Jo Kilner will do well take him as their model of what an R.A.F. officer should be. He w a good man in every sense of the word. He bore his many honou modestly. He fought gallantly. He did his duty thoroughly a he bore his afflictions with patience and courage.—C. G. G.]

RANSFORD.—On Oct. 19, at a nursing home, suddenly, Flt. L Alan Carpmael Ransford, Royal Air Force, Medical Service.

Dr. Ransford served with distinction in the R.A.M.C. during th War and joined the R.A.F. Medical Service in February, 1922. H was posted to Manston in April, 1922, and to the staff of the Static Commandant, Iraq, in November of the same year. In June, 1923, h was posted to the Baghdad Combined Hospital. In July of the prese year he returned to the Home Establishment and was appointed the Electrical Wireless School, R.A.F., Flowerdown. He was pr moted to the rank of Flt. Lt. in July, 1922.

MARRIAGE.

BURNLEY—STOUGHTON-HARRIS.—On Oct. 19, at Bomba Cathedral, Flg. Off. Darrell Clinton Burnley, R.A.F., younger son Mr. and Mrs. A. C. Burnley, 142, Coleherne Court, Kensington, S.W to Margery, younger daughter of Mr. and Mrs. A. Stoughton-Harris.

BIRTHS.

LUCY.—On Oct. 23, to Ione, wife of Flt. Lt. R. S. Lucy, A.F.C R.A.F.—a daughter.

SPENCER.—On Oct. 16, at Peshawar, the wife of Flg. Off. G. R. Spencer, R.A.F., of a son.

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REED AIRSCREW SUCCESSES.

The record of the Curtiss-Reed (duralumin) Airscrews in e Air Races at Mitchel Field Oct. 8 to 13, 1925, are of exptional interest and are well worth recording. Excluding e "On To New York" competition, which was not operly speaking a race, there were nine races, and six were n by Reed Airscrews.

The figures for the types of screws used are as follows :—

tal number of Planes in all races 85
" " " Curtiss-Reed Propellers " " " 50
" " " other metal propellers " " " 12
" " " wooden propellers " " " 23

)f the above 85 :

41 were Army and Navy with 25 Curtiss-Reed Propellers.
44 were Civilian and Foreign with 25 Curtiss-Reed Propellers.

he only high speed races were:

Race 9 for Army Pursuit Planes 10 Planes
Race 10 for Pulitzer Trophy 5 "
All 15 of the above Planes had Curtiss-Reed Propellers.

The winner of the Pulitzer Trophy established a new orld's Speed Record for a closed course. The Pulitzer ophy winner had a Curtiss-Reed Airscrew in the Air Races 1925, making the third successive time, 1923, 1924 and 1925, that a Curtiss-Reed Airscrew has been on a Pulitzer Trophy winner.

The U.S. entries for the Schneider Cup at Baltimore, Oct. 25, 1925, and the two British entries all had Reed Airscrews, those on the British machines having been made by the Fairey Aviation Co. Ltd. under the Reed Patents.

The present World's speed record was made in France on December, 1924, by a Bernard monoplane using a Levasseur-Reed Airscrew. Most of the machines carrying the U.S. Air Mail daily from New York to San Francisco have Curtiss-Reed Airscrews.

The U.S. Army, Navy and Post Office have already, either delivered and on order, 410 Curtiss-Reed Airscrews. And still the experts of the British Air Ministry hesitate to approve Reed Airscrews as being airworthy, although they have travelled faster than other screws more often than has any other type.

SOMETHING LIKE AN ORDER.

It is reported that the Lorraine-Dietrich, Salmson, Hispano-Suiza, Gnôme-Rhône and Renault firms have received orders for a total of 770 aero-engines for the French Ministry of War.

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THE PROPRIETORS of British Letters Patent No. 183145 entitled "Improvements in or relating to a Method and Apparatus for the Photogeodetical Production of Maps from Overlapping Oblique Terrestrial or Aerial Photographs," are desirous of selling the Patent or would grant licences to interested parties on reasonable terms. Communications please address to Dicker & Pollak, Chartered Patent Agents, 20-23, Holborn, London, E.C.1.

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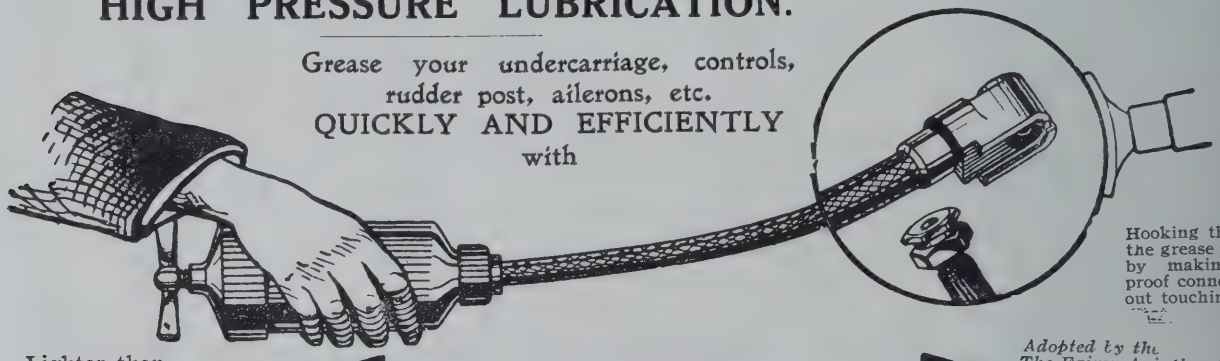
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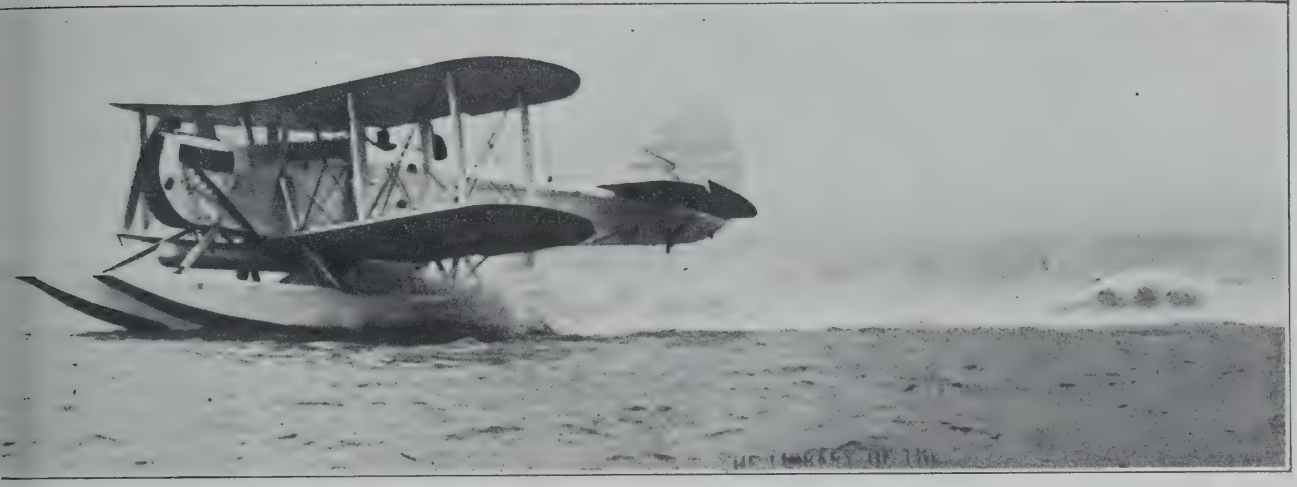
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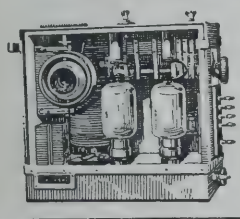
THE NAVY'S WEAPON.



GETTING OFF:—A Blackburn Dart (Napier) leaving the water with a dummy torpedo at Brough in the course of a somewhat naval occasion there last week.

JAN 21 1926

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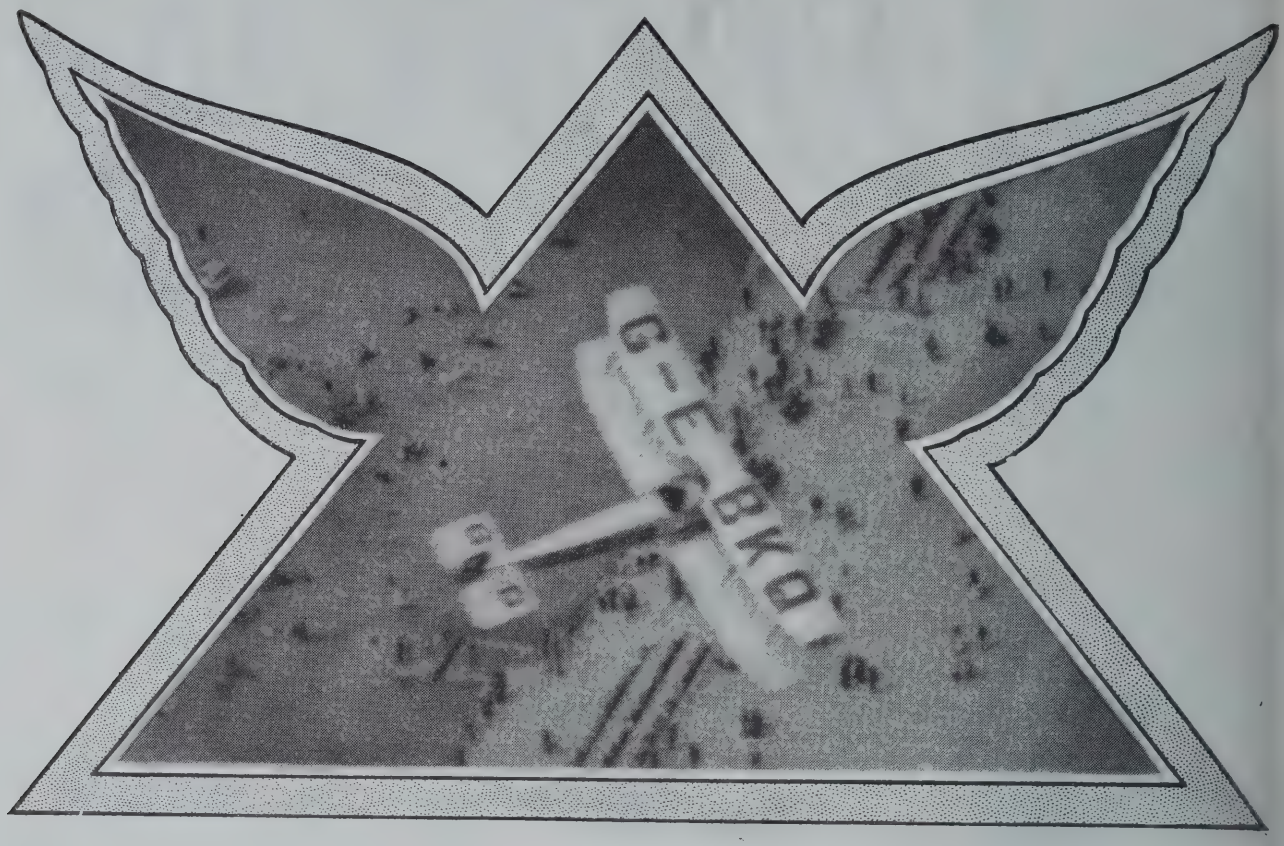
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ON TORPEDOES AND THINGS.

A visit to the Blackburn amphibian aerodrome at Brough always a pleasant interlude in the course of one's work. verybody there is so cheery and full out about everything. 'hat with the R.A.F. Reserve aerodrome and its pilots and s menagerie of land and water machines, and the Blackburn actory with its crowds of brand new machines of some-year-d designs—which are about the latest which the experts at ıe Air Ministry allow any firm to produce in quantities—ıd the secret and confidential hush-hush workshop with its ring of guards and passwords and permits and all the rest, hich nobody is allowed to penetrate on pain of death or at ıy rate of consignment to some oubliette beneath the Air inistry among the sewers of Kingsway, there is always ıething doing at Brough.

The particular occasion for one's latest interlude in this rection was Wednesday last, Oct. 28, when a number of stinguished and undistinguished persons were lured to rough by the combined hospitality of the Blackburn Com-ıy and the Napier Company. These entertainments by air-aft firms now seem to be organised on quite a distinct inciple. For example, at the recent lunch given by the ckers people, to the Japanese aviators who had flown from okyo, the principal guests were the survivors of the World's eatest long-distance flights—as illustrated in THE AEROPLANE cently.

This party at Brough was organised to introduce to the orld the new Blackburn torpedo-dropping float seaplane. nsequently the principal guests were people primarily in-rested in naval aviation, in which torpedo-dropping viously plays a very important part.

Foremost among them was General Guidoni, the newly pointed Italian Air Attaché in London, who was historically e first aviator ever to drop a torpedo from a water-going craft, the feat being performed by him in 1912 from a rman box-kite seaplane fitted with cylindrical floats, be-ath which were Guidoni "palettes" to lift them out of e water. There was also present Air Vice-Marshal Sir Vyell vyan, who recently retired from the R.A.F. much to every-dy's regret but who is happily still as keenly interested as er in sea-going air work. And among the other guests were ajor Davidson (the U.S. Army Air Attaché, who knows out as much as there is to know about British aviation), eut.-Commander Fitz-Simons (the Argentine Naval Air taché), Squadron-Leader Brown (the Liaison Officer of the yal Australian Air Force), Major Kingsley (the pioneer of il aviation in Argentina), two officers of the Spanish val Air Service, two Japanese naval officers and a repre-ntative of our Admiralty.

Mr. Robert Blackburn being away on the Continent, the chief of our hosts was Mr. Hudson, Director of the Blackburn Aeroplane and Motor Company Ltd., assisted by Messrs. Norman and Charles Blackburn, Mr. Rhodes, Major Bumpus, Major Rennie and Mr. Tony Gladstone (complete with brand new Bentley), so naturally all went well.

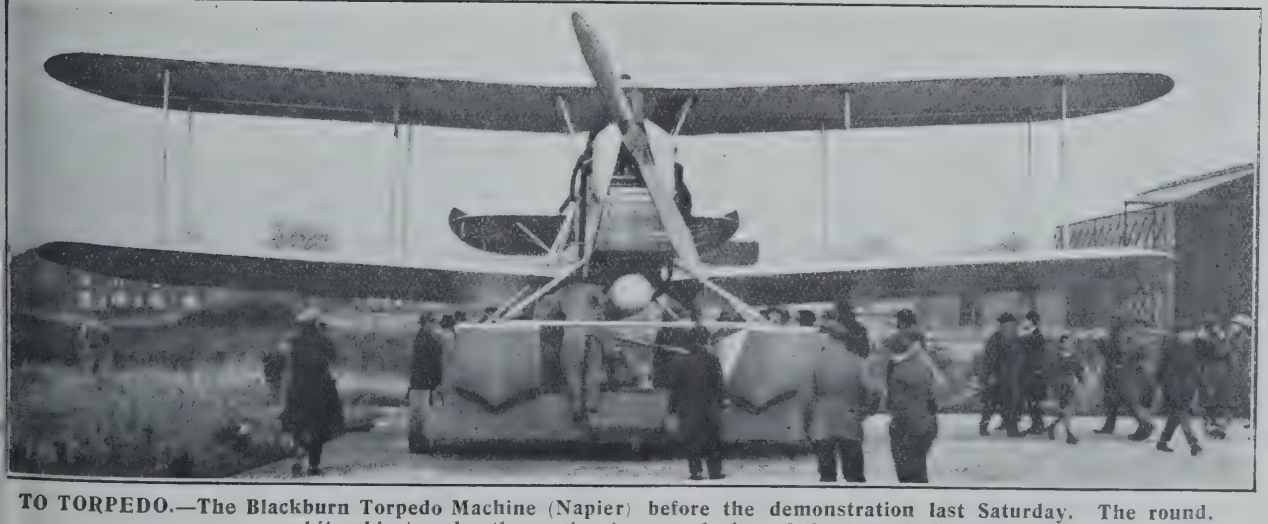
The star turn of the afternoon was the launching of the seaplane aforementioned. As may be seen from the accompanying photographs she is a Napier-engined biplane, very similar in general lines to the Blackburn Swift and Dart which are already familiar to the World's navies, sea-going and aerial. Her floats are however novel in design though not noticeably so at first glance. It may be seen however that they are of the long-float type. That is to say, the floats are long enough to support the whole machine without using a tail float. The majority of seaplanes have short floats to the undercarriage and a small third float under the tail. The photographs show that the Blackburn floats have very pleasing lines tapering to a fine stern which sinks cleanly into the water when alighting. Major Rennie, who designed these floats and the special airscrew used on this machine, deserved to be congratulated on her success.

So far as the performance is concerned one need only say that the machine sits very comfortably on the water and is obviously easily controllable, and that she gets off with remarkable ease, and that she alights smoothly and without any sign of porpoising.

In the air she is evidently beautifully controllable either with the engine on or with the engine off. Her speed is but little less than that of the Swift with wheels. Flt. Lt. N. J. Woodhead, D.S.C., handled her in a masterly manner, bringing her down very neatly over the dyke which preserves the Aerodrome from the river and very close to the onlookers so that everybody had the best possible view of the machine in all attitudes.

The dummy torpedo was in fact dropped so close to the slipway that it sprayed the people who were standing near the water's edge. Thereafter it popped up out of the water turned round, and drifted in a friendly way towards the launch which was waiting to retrieve it.

Evidently Flt. Lt. Woodhead is not merely a competent pilot but a very able display pilot, which is quite another matter. Mr. Gladstone, who accompanied him as passenger, is allied to the Blackburn Company by being a Director of the North Sea Aerial and General Transport Company Ltd. which was originally formed with the idea of running an air line from the Humber to Holland and Scandinavia. Pending the development of such a line Mr. Gladstone has been investigating the possibilities of transport along the Upper Nile from Khartoum



TO TORPEDO.—The Blackburn Torpedo Machine (Napier) before the demonstration last Saturday. The round, white object under the engine is an end view of the torpedo in position.

to British East Africa, and he must have found the sub-Arctic air of the Humber on Wednesday rather a contrast to his recent equatorial experiences. However he seemed just as enthusiastic about torpedo-dropping at Brough as he is about crocodile-dodging on the Nile. And he is equally convincing on either subject.

To the best of one's recollection this machine is the first float seaplane to be built specifically as a torpedo-dropper in this country since the end of the War 1914-18. As already mentioned the very first torpedo-dropping experiments were made by Lieutenant (now General) Guidoni in Italy.

Just before the War in 1914 Lieut. Hyde-Thomson, R.N., with the assistance of Captain (now Admiral) Murray Sueter, made some torpedo-dropping experiments at the R.N.A.S. Station at Calshot with a Borel monoplane mounted on floats. These experiments did not get far because the Borel was too small to lift the torpedo.

Further experiments were made before the War with, if one recollects rightly, a Sopwith biplane on floats. Quite early in the War some float seaplanes were rigged up to carry torpedoes.

The very first torpedo work to be done by aircraft in war was when Flt. Cdr. C. H. K. Edmonds, D.S.O., R.N. (now Wing Cdr. and O.C. Eastchurch) persuaded one of the early Short seaplanes with a Sunbeam engine to climb over the Gallipoli Peninsula with a full-sized Service torpedo slung between its floats. Having reached the Marmora he found a Turkish troop-ship moored off Maidos and launched his tor pedo while sliding along the water. The torpedo found it mark all right and duly sank the ship but unfortunately sh had only a few feet of water under her keel and came peace fully to rest on the mud. However that was the first instanc of a ship being actually sunk by torpedo from a seaplane Wing Cdr. Edmonds deserves his place in history as th pioneer of aerial torpedoing.

For some reason this class of work was hardly employe during the War and the famous *Goeben* escaped being sun when she stranded later in the War at the entrance to th Dardanelles solely because we had no torpedo aircraft, an no bombs big enough to hurt her.

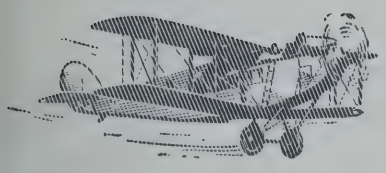
The Germans sent a few torpedo-dropping seaplanes fro the Belgian coast and sank one or two vessels moored in th Downs. One in fact sent a torpedo into either Ramsgate o Margate harbour, the torpedo fetching up on the beach with out hitting anything.

There is no doubt that if the torpedo-dropping seaplan had been properly developed by the British Navy we migh have reached the German harbours with good effect, and th battle of Jutland might never have taken place.

Since 1918 the American Navy has developed torpedo sea planes considerably. Quite an array of them appeared a the Baltimore Seaplane Meeting just a year ago and photo graphs of these machines, which one took oneself, appeare in The Aeroplane shortly afterwards. But for some curiou



HAVING TORPEDOED.—The Blackburn (Napier), piloted by Flt. Lt. N. J. Woodhead, with Mr. Gladstone as passenger, dropping a torpedo into the Humber at Brough.



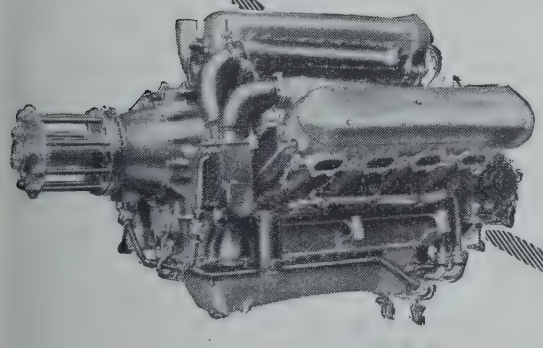
BY reason of its light weight per H.P. developed, its compact design and absolute reliability at all speeds, the Napier 'Lion' aero engine is suitable for all types from the small racing machine to the giant bombing and commercial aeroplanes.

The last three Aerial Derbys have been won by Napier-engined Gloster machines.

On commercial service, one Napier aero engine has covered 170,000 miles and is still in service.

Major Zanni with a Napier engine covered the distance from Amsterdam to Tokio (10,000 miles) in 22 days' flying without having to touch his engine.





NAPIER

Water-Cooled

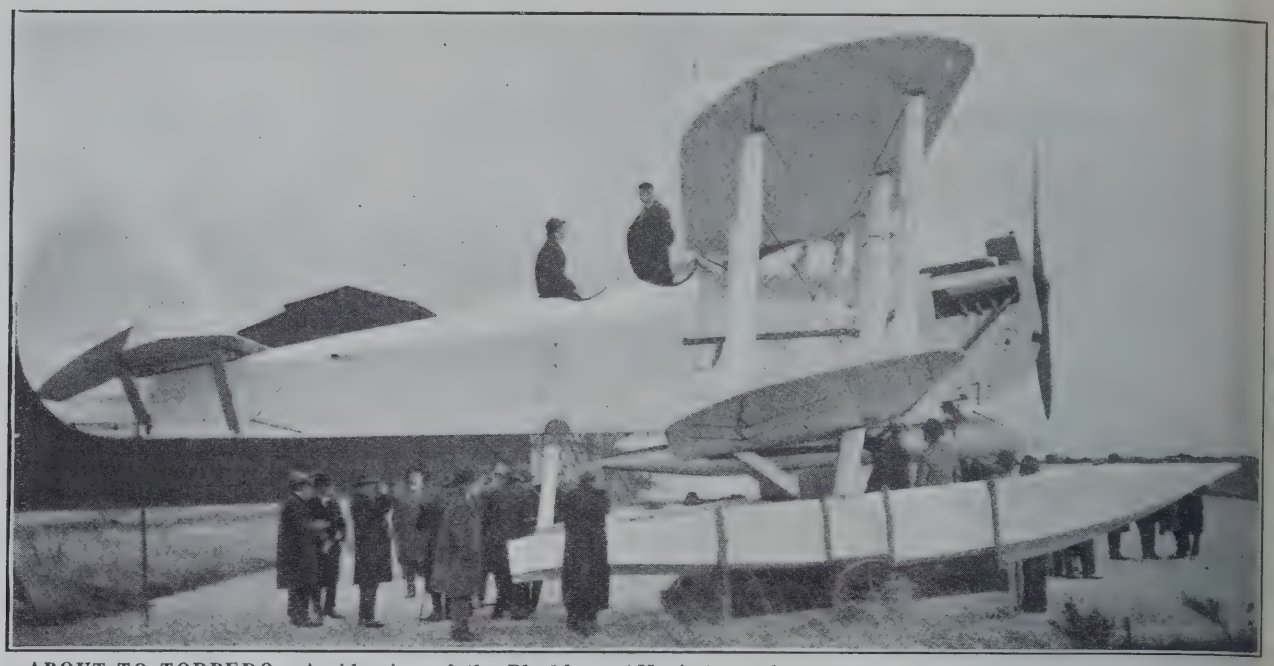
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ABOUT TO TORPEDO.—A side view of the Blackburn (Napier) on her launching cradle, with the torpedo in position. The breeze and not embonpoint is responsible for Mr. Gladstone's figure.

reason the British Navy has neglected the torpedo seaplane and has preferred to rely on torpedo-droppers flying from the decks of aircraft carriers, regardless of the lessons of the past few years which seem to indicate that while the deck-flying people are kept busy inducing their machines to fly off the decks the air work of the British Fleet in foreign parts has been done by ordinary float seaplanes of the Fairey III D. type, which are hoisted overboard by a crane, or else by the old-fashioned F.5 flying boats operating from harbours.

Therefore one is glad to see the Blackburn people turning out, albeit for a foreign nation, such an excellent example of the torpedo-dropping float seaplane. It is another example of the wisdom of the policy of going ahead independently of the Air Ministry's experts.

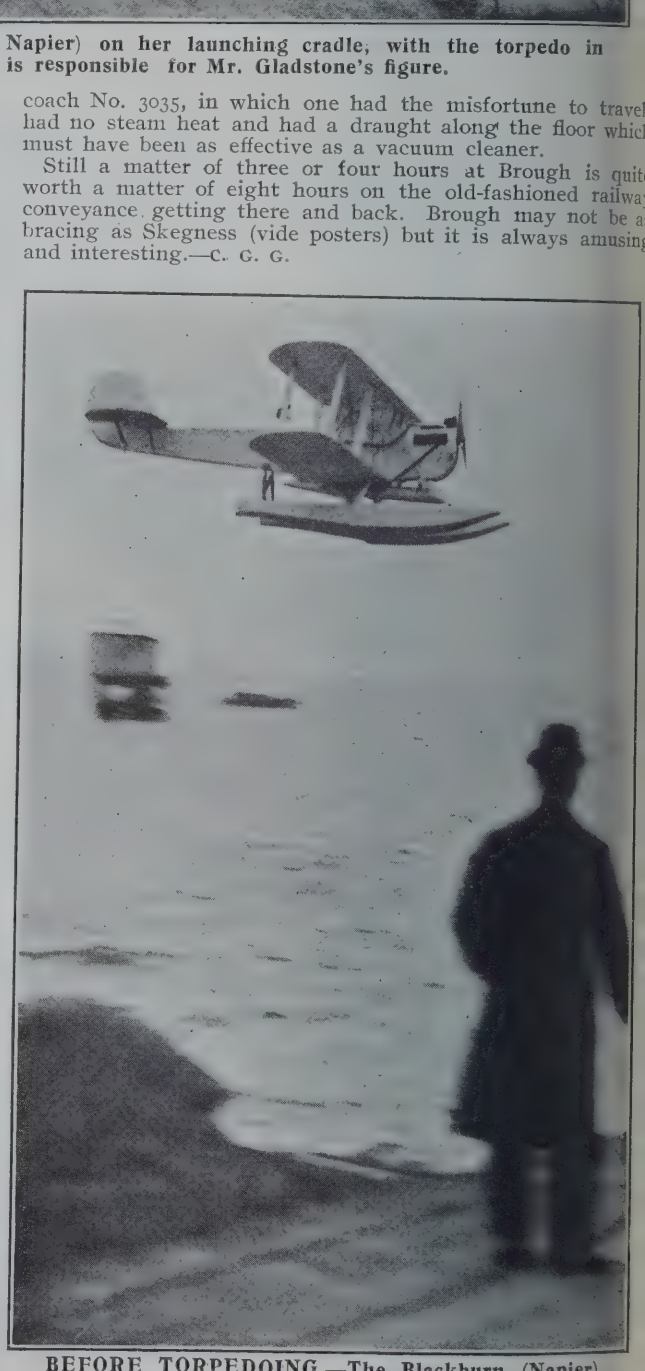
After the torpedo had been dropped the visitors were allowed to glance into the Blackburn Factory where deck-flying fleet-spotters of the Blackburn type and deck-flying torpedo-dropping Darts are being produced in quantities. But admission to the secret and confidential experimental workshop was sternly denied.

Meantime the Reserve School was busy at work. A pupil was busy parading round the sky over the Humber on a Swift fitted with floats. Another was careering over the land on an Avro and flying very well. But the real joy to the old-timers among the visitors were a couple of the old Kangaroos with twin Rolls-Royce engines. One of these performed at the Elta Aero Show at Amsterdam in 1919 and is still going strong. With their long projecting noses and their interminable thin fuselages with a great big box tail at the end, and their engine units which have apparently no connection with the fuselage they certainly are most surprising aircraft in aspect, but they are amazingly good flying machines, and they are beautiful things for the training of pilots in the handling of twin-engined machines.

After all this the visitors adjourned to the Blackburn Mess, which is as ably managed as ever by Mr. Martin, who was one of the very first naval ratings at Eastchurch when the Navy began to fly. Here one gathered that apart from their production aircraft the Blackburn people seem to have struck out on new lines. Somebody said they were breeding Airedales. And an excellent specimen of one was pointed out on the Aerodrome at the moment, a fine upstanding chap with a good black back and fine straight legs and a properly pugnacious aspect about his brown and grey muzzle. One fancies he must have been the property of Mr. Martin. It was also said that they have taken to cultivating the iris, a plant which grows well in these swampy districts. The white variety seems the most popular, though considering that the Blackburn Company are so intimately connected with sea-going aircraft which are the Eyes of the Fleet, and considering the Navy's habit of seeing red whenever the Air Ministry is mentioned, one would have imagined that a purple iris, in the optical sense, would have been more appropriate. Anyhow, one wishes the Blackburn Company well with these bye-products, sidelines or whatnots.

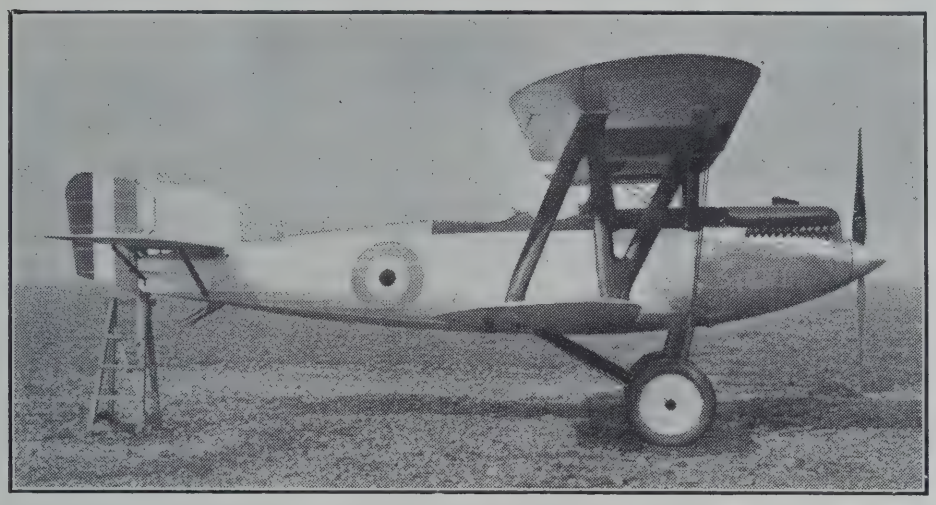
Thereafter the assembly were duly transported back to London. The only complaint anybody had was the discomfort of the saloon coaches provided by the London and North-Eastern Railway, which were as cold as charity. At any rate, coach No. 3035, in which one had the misfortune to travel had no steam heat and had a draught along the floor which must have been as effective as a vacuum cleaner.

Still a matter of three or four hours at Brough is quite worth a matter of eight hours on the old-fashioned railway conveyance getting there and back. Brough may not be a bracing as Skegness (vide posters) but it is always amusing and interesting.—C. G. G.



BEFORE TORPEDOING.—The Blackburn (Napier) manœuvring for a shot.

R·A·F· TYPES — No 7.





THE FAIREY "FOX" AEROPLANE.

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THE DEATH OF FRUNZE.

On Sunday, Nov. 2, information was published that Frunze, the Commissar for War in the Russian Government, had died after an operation for gastric ulcer. On Feb. 11 there was published in THE AEROPLANE an article "On the New Russian Leader," dealing with Frunze's remarkable career as the conqueror of Admiral Koltchak in Siberia and General Wrangel in Southern Russia. Frunze at that time was well under forty years of age.

One hazarded the opinion that he might be the Russian Napoleon for whom the military people of all the World are watching at present. It would appear that in the history of Republican Russia he has been more nearly the parallel of General Lazare Hoche.

Curiously enough his career has in some ways closely resembled the career of the French General. Lazare Hoche rose from the ranks of the bare-footed Republican Army, and as a General defeated the emigrés and their supporters in North-Eastern France and Flanders, much as Frunze defeated Koltchak in Siberia. Then he was put in command of the Army which crushed the rising in La Vendée and actually drove the Vendéans into the sea at Quiberon Bay, where their leaders were taken off by the British Fleet leaving the rank and file to be massacred on the beach, almost exactly as Frunze drove Wrangel's Army into the sea in the Crimea.

There are those who hold that Hoche was a greater soldier than Bonaparte. And as history always repeats itself it may well be that the death of Frunze will leave the way open to a less able soldier but an abler politician who may become the Russian Napoleon. Therefore the military affairs of Soviet Russia should be more closely watched than ever.

GROUND STRAFING.

A German officer, who pays THE AEROPLANE the compliment of reading it regularly, writes :—

"Your article on the British army manœuvres was very interesting. But of single-seater 'ground strafing' of small detachments of infantry or cavalry I do not think very much I have too often been 'ground-strafed' myself by Sopwiths and Spads, when going for a stroll during the 'Heldenstunde,' which was our term for the quietest time of the day between 7 and 9 a.m., when even the great ones from very far behind the balloons dared to come and see the trenches—of course not the first ones. ["Heldenstunde" means "heroes' hour,"—a neatly humorous term.—ED.]

"'Ground strafing' columns and trains was a beastly mean thing, but 'ground-strafing' small detachments was unpleasant for them only the first time, when one saw for the first time the white stripes of the 'leuchtspur'—'tracers' you call them, I think. Later on one got quite accustomed to it. It was rather harmless, for mostly the single-seater pilots seemed rather pressed to get home. Of course being 'ground-strafed' by two-seaters was a very different thing."

THE AUTO-GIRO.

The tests with the de la Cierva Auto-Giro at Farnborough have now been concluded. The "crash" on Saturday, which was reported in the papers, was deliberate and expected, and was done to see what happened in a vertical descent with the machine falling as fast as it *would* fall. The resultant damage was very slight, and proved that with an undercarriage with sufficient travel vertical descents will be the rule.

The Air Ministry have decided that the machine can fly, although their experts, one is told, assure them that it can do nothing of the sort. After mature deliberation one is told that they are on this occasion inclined to believe their eyes rather than their experts, though naturally they do not want this to become a habit or a precedent.

What the next move will be one may not at the moment say, except that certain building rights are to be acquired from Senor de la Cierva. If the Air Ministry acquired the building rights it is estimated that, provided they got a move on, and hurried, the first machine ought to be ready about February. (Yes! Dear Reader. You're right. The February in question would take place in 1930.)

The best course really would be for Senor de la Cierva to keep the rights to himself, form a company in this country, and elsewhere, and build his own machines.

Meanwhile not many more experiments will be conducted with the present machine. Two new Auto-Giros, with 300 h.p. Hispano-Suiza engines, are now being built in Spain.

It was reported in the press on Saturday that the pilot of the Auto-Giro when it crashed was "Rollo de Haga Hago." Someone who read this, on meeting Mr. Courtney said, "Hello, I see some Italian blighter has crashed your flying palm-tree!"

The said Italian name was of course as near as the Press could get to Sq. Ldr. Haig's name. One hopes that the family Sealyham will bite the said pressman responsible, especially as it was Mr. Courtney who was flying the machine and not Sq. Ldr. Haig, who was up at Pulham on the Secret List.—G. D.

AIR SURVEYS IN BURMA.

The following letter has been received :—

Sir,—We have observed in your issue of Oct. 21 a long article under the above heading, which reports somewhat fully a paper read by Major Cochran-Patrick, D.S.O., M.C., before the Royal Aeronautical Society on Oct. 15.

My Board notes that Major Cochran-Patrick refers to the Survey of the Irrawaddy Delta, but he does not state that this was carried out entirely under the direction of our Managing-Director, Mr. R. C. Kemp, who entered into the contract for this survey.

After this survey was completed—and with very great success—this Company was formed, and Major Cochran-Patrick was employed by us as also Mr. Andrews and Mr. Bishop, to whom Major Patrick refers.

As regards the sundry small surveys mentioned by him, such as the Timber dump of the Bombay Burma Trading Company, the Tenasserim Forests and the Yenangyaung Oilfields, these were all made by the Air Survey Co. Ltd., and the three gentlemen referred to were employees of this Company. Mr. Andrews and Mr. Bishop are still in our employ, but not Major Cochran-Patrick. Therefore the credit for such surveys is undoubtedly due to the Air Survey Co. Ltd., and particularly to Mr. Kemp, who by his enterprise in taking up the contract for the survey of the Irrawaddy Delta, has proved himself the most successful pioneer of Air Surveys for Civil and Commercial purposes.

As a matter of fact, as a result of these surveys, this Company is now engaged in carrying out a large contract for the Anglo-Saxon Petroleum Co. Ltd., in North Borneo, and has engaged the services of the well-known pilots, F. P. Raynham and Capt. Gaskell, in addition to which more contracts are in hand for the Sarawak Government and the Federated Malay States.

In conclusion, we heartily concur with your final paragraph wherein you suggest that "success in Commercial Aviation will not be achieved by bleating for perfect commercial aeroplanes but by finding the work which existing aeroplanes can accomplish economically," and we think that this Company has, from its own experience, proved that your suggestion is correct.

(Signed) For and on behalf of Air Survey Co. Ltd.
C. ALTON DODDS, Secretary.

[The report which appeared in THE AEROPLANE had to be condensed to about one-fifth of the length of the lecture, and was concerned with the technical methods of doing the work rather than with the history of the operations. Consequently Major Cochran-Patrick's reference to Mr. Kemp's part in organising the original Irrawaddy Survey was omitted because a full illustrated report of that operation was published in this paper in May, 1924. Similarly, Major Patrick's reference to the Air Survey Company had to be omitted, owing to pressure on space. If anyone has received the impression that Major Patrick himself neglected to give their just dues to Mr. Kemp and the Air Survey Co., one desires to express regrets to all concerned.—ED.]

TOKYO—ROME.

On Oct. 27 the Marchese di Pinedo and Signor Campanelli, who are returning to Rome from Tokyo on their Savoia 16 flying boat, arrived at Rangoon from Bangkok. They covered the 350 miles in four hours in cloudy weather.

On Oct. 28 they flew from Rangoon to Calcutta, landing at Akyab en route.

On Oct. 29 they flew to Benares and on the following day to Delhi.

On Oct. 30 they reached Bhawalpur and on Oct. 31 they alighted in Karachi harbour by moonlight, having flown across India in two days without event.

On Nov. 2 they were reported to have arrived at Bandar Abbas.

A TEST TO THE LIMIT.

Information has been received that a test of unusual severity has been made on a Grebe single-seat fighter built by the Gloucestershire Aircraft Company Ltd.

In the course of the past twelve months or so certain single-seat fighters in this country and elsewhere, of quite modern design as well as wartime products, have broken in the air while performing manœuvres which might well be necessary in an air fight. In order to demonstrate the strength of the Grebe an R.A.F. pilot, duly equipped with a parachute, subjected the machine to the greatest stresses possible in the air. The most severe test was that of diving at a speed of 240 m.p.h. and then pulling the nose of the machine upward as quickly as it could be got up.

In spite of the best endeavours of the pilot to break it, nothing went wrong with the Grebe and, except for the adjustment of a few bracing wires, no work had to be done on the machine after the flight. The story of this test is quite unofficial and merely comes in the ordinary way of R.A.F. gossip, but it is certainly sufficiently authentic to be accepted as true.

"AUSTRALIAN AVIATION."

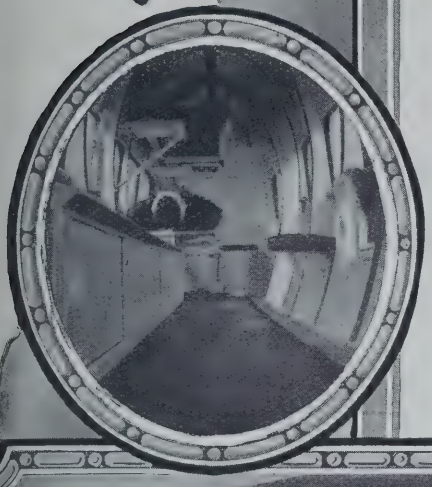
It is regretted that the article on Aviation in Australia, to which reference is made on the front cover page, has been held over owing to pressure on space.

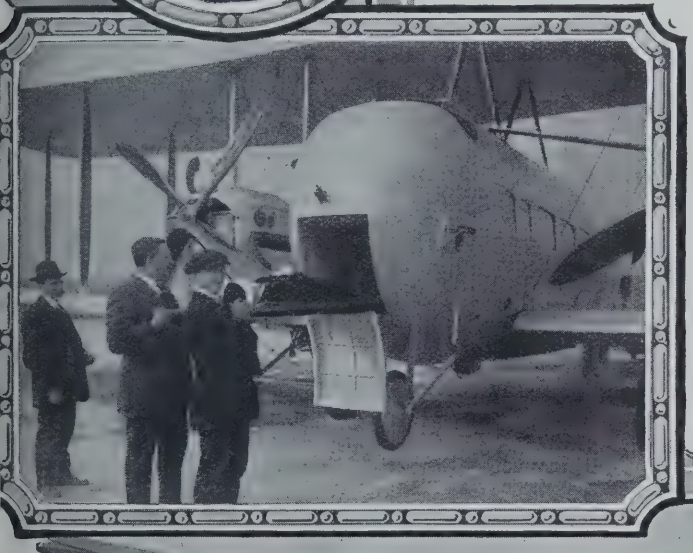
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SECRECY AND THE SCHNEIDER TROPHY CONTEST.

The Air Ministry's Obsession.

Frequent references have been made in this paper to the attitude of secrecy adopted by the Air Ministry about the Schneider Trophy machines and other things. Recently one suggested in this paper that secrecy was so preying on the minds of the officials concerned that the said minds, if any, were becoming seriously affected. The detonations which have occurred during the past weeks over a guess, or rather an intelligent calculation, of the power of the Napier engines fitted to the Schneider machines, lends colour to the supposition.

If there be any real need for secrecy none pays greater attention to that need than The Aeroplane. At the present moment members of this staff are in possession of full particulars of more than twenty cherished secrets of the Air Ministry which if published would probably cause something of a sensation. But because there is a good reason why these secrets should remain secrets naturally they are kept as such.

But for so long has the Air Ministry cried "Wolf" with its alleged secrets that most people have by now ceased to regard them and their beloved secrecy seriously.

The particular matter that has aroused their wrath is a statement issued from this office stating that special 700 h.p. Napier engines had been shipped quietly to the States to be installed in the racing machines at the last moment in place of the 630 h.p. Napiers used in the trials.

To be strictly accurate one is now told that the truth of the matter is that the 700 h.p. engine was in fact installed before starting for the U.S.A.

But who was the wicked person who divulged the news that the engines developed 700 h.p.? That is what the Air Ministry is so concerned to know. Not being secretive by nature one will enlighten the Air Ministry on this point.

Intelligent Anticipation.

Last year a statement was freely circulated that the engine in the Gloster-Napier II which sank on its trials at Felixstowe developed 630 h.p. Everyone in this country knew that an even later type of Napier engine developing yet more power had been produced. It seemed reasonable to suppose that from 630 h.p. the next hundred figure would be aimed at, and so one hazarded the guess that the figure would be 700 h.p.

When this statement was sent out the fuss and bother that was set up made it obvious that one had hit the mark. If only the Air Ministry and others concerned had not seen fit to pour out denials, and denials of denials, but had just lain low and said nothing, everyone would have been in the state they were in before, that is, of knowing nothing but just being left guessing.

One had arrived at the conclusion that the engine developed 700 h.p. some six weeks ago. But one purposely refrained from making it public until the evening before the machines had to be presented for final inspection and sealing by the Contest Committee so that our rivals would have no time to improve their own machines. For obviously 80 h.p. or so cannot be added to an already over-boosted engine in a few hours.

Already our machines were regarded as dangerous rivals by the U.S. team and the knowledge that our engines developed 70 h.p. more than they had previously imagined would not make the U.S. pilots go any quicker than they had previously intended to go.

As to our machines and their engines being regarded as official secrets, that is merely childish. Machines entered for an International Air Race in a foreign country can hardly be regarded as secrets. This year, for example, the Contest Committee, which is entitled to inspect every stick, nut, and bolt of the machines, included officers of the Flying Services of the United States.

As one said of the original Schneider Committee, if the Air Ministry has any wishes it should express them. One really cannot help transgressing its wishes if they are left unexpressed. We of the Press are no doubt quite clever people, and omnipotent in most black arts. But, speaking for oneself at any rate, one has little aptitude in telepathy.

One suggests to the Air Ministry, future Schneider Committees, and other such secret bodies that if in such cases in future they have secrets which they do not want divulged they should take completely into their confidence those people who by the nature of their duties cannot help discovering things.

Hampering Good Publicity.

Ever since the beginning of arrangements for the Schneider Trophy race the Air Ministry and the various committees have continuously been making trouble over little things. But those of us who have done our best to help British prestige have never had one single word of thanks for our efforts to raise the reputation of our aircraft.

As a matter of fact one takes to oneself a very large amount of the credit for the amount of attention the Press and Public are now giving to the race. In 1919 when the contest was flown at Bournemouth there was practically no mention whatever made of the Schneider Trophy in the daily press. The same thing happened in 1920 and 1921 when the contest was held in Italy. On both occasions the event was dismissed in a couple of lines, if it was mentioned at all.

In the following year, when the contest was won by the Supermarine-Napier at Naples, one wrote some articles on the race for that enterprising evening paper, *The Evening News*, which deserves full credit for being the first daily newspaper to realise the importance of the race.

The next year, when the contest was flown at Cowes, one was able to give much advance news of the event, until ultimately all the other papers followed suit.

Last year, when the contest was booked for Baltimore, our daily newspapers were keenly interested, although the only machine which we completed for the competition was sunk in an accident before leaving England.

This year the daily papers have made a big feature of the event and one finds that in the daily press *The Evening News* has been responsible for about three times as much as anyone else, and has always been "first with the news."

Undoubtedly the Air Ministry has done much to make it possible to send our team over, in which it was doing its duty, though that may seem unusual for the Air Ministry. But it has put every possible obstacle in the way of the Press who have been trying their best to make the public take an interest in the race, with the object of giving a much-needed stimulus to aviation and help to our Aircraft Industry, on the soundness of which depends the very existence of the Royal Air Force, and so of the Air Ministry itself—as Mr. Churchill has stated on various occasions.

Shakespeare spoke words of wisdom when addressing the Winter Wind, he said "thy tooth is not so keen as man's ingratitude."

Next Year's Contest.

Somehow or other, by hook or by crook, we have got to bring the Schneider Trophy back to Europe and keep it here again in 1927 to prevent its becoming permanently domiciled in the United States.

Since 1923 we have tried to win the Trophy by hook and in order to prevent its remaining in America next year it looks as though the only sure way will be to resort to crook, and hire the gentleman who "won" the Ascot Gold Cup some years before the War, under the very eyes of the police and under his own top hat.

Still, if the Air Ministry, the engine makers and the aircraft constructors get down to it properly and started work last Tuesday week, the day we heard of our last defeat, we may do something next year. It is well to remember that the Gloucestershire people had begun operations towards their 1925 challenger *before* the contest was to be flown at Baltimore in 1924, and as soon as their 1924 challenger was crashed. And it is known that they are already at work on a monoplane with wing radiators, to challenge for 1926, provided they get reasonable support from the Air Ministry.

The Royal Aero Club should first and foremost now immediately enter three machines while their enthusiasm is still up, so as to avoid that error of judgment on someone's part which resulted in the Club being in the position only to enter two machines this year.

In the matter of engines we are probably in a better position than are the Americans. The Napier direct drive engine is well developed and next year it should have a power output of about 750 h.p. (This is only a guess, Messieurs of the Secrecy Department of the Air Ministry, and no one has given away information. The figure is estimated by the difficult calculation of adding the nice round figure of 50 to the already admitted 700. Try it in your spare time, if that time can be distinguished from any other. If not, neglect one cross-word puzzle a day. You will find the exercise well worth the self-denial.)

Next year the direct drive Rolls-Royce Condor should be available. The Condor normally develops 650 h.p., but with direct drive and a higher compression ratio the power output should be nearly 1,000 h.p. (Only a guess again, Messieurs of the Air Ministry.) In fact one hears already that in its first tests the direct drive Rolls-Royce Condor is proving a great success.

Then the Fairey Aviation Company Ltd. have the British rights for the Curtiss engine, so presumably that engine will also be available if it is required.

So far as the engine position is concerned we are right enough, but it must be admitted that so far as racing aeroplanes are concerned we are about where the Curtiss Company were in 1923. And somehow before next Summer we must catch up with them.

270 m.p.h. Seaplanes Next Year.

First and foremost let us hitch our wagon to a star and not

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LIGHT AEROPLANE

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The Honorary Secretary of one of the British Light Aeroplane Clubs.

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one of the plural ones to which the Air Ministry goes through such hardships. We must be prepared to build a machine, or rather several machines, which, as seaplanes, will do 270 m.p.h. next summer, and 300 m.p.h. by the summer of 1927. Otherwise we shall again fail.

The Press this year have been taken to task by people in the Aircraft World for predicting speeds of four miles per minute for the Schneider seaplanes. And yet Lt. Doolittle averaged 232 m.p.h. for the course and the following day put up a straightaway record of 245 m.p.h. Therefore let us aim for 270 m.p.h. next year.

Ever since they built their first serious racer, the Texas Wildcat, in 1920, the Curtiss Company have produced generation after generation of racing machines. They have first of all carried out wind-tunnel tests at the Curtiss plant in Garden City, New York. With the aid of plasticene they have played about with models at racing speeds and on the results of these they have built full-sized machines. Data having been obtained from these they have returned to models and so on to full-scale machines again. The result is that after five years' research they have reduced the design and construction of racing aeroplanes almost to an exact science.

If we are going to do any good we have got to produce two generations of machines by next year and five generations, if possible, before the summer of 1927. In order to be sure of no delays we must have several machines and not only one or two.

Let the Air Ministry at once place orders for a dozen direct-drive Napiers and a dozen direct-drive Rolls-Royces. Then let them place an order with every firm in the Aircraft Industry for two racing seaplanes.

Doubtless some firms will find that they are not in a position to attempt these. But the Gloster and Supermarine firms are sure to try again. The Hawker, Avro and Fairey firms are all known to be experimenting with high-speed machines and the Blackburn and Bristol firms have both had experience in building racing machines.

In addition to these, A.D.C. Aircraft Ltd., Armstrong-Whitworth, Parnall and Vickers have all had experience with fast machines and are all in a position to design and build racing machines quickly. If they are given the word to go at once and if the usual forms of official hindrance are absent they will be able to build a test machine within a few months.

Training Pilots.

The next thing is the question of pilots. Twenty of the best R.A.F. and Civil pilots should be selected. They should be possessed of the skill of a Farnborough or Martlesham test pilot coupled with the physical condition of an R.A.F. Rugger forward. They should start training at once on fast machines. The Hawker Hornbill, the Gloster Gorcocks, and Fairey Fox will do for a start and then when the remains of the Schneider machines return from America, they can be used. One Gloster and the Bamel are now ready for use and the other Gloster should not need much repairing. After training on floats the machines should be fitted with land undercarriages so that pilots can try the effects of turning at the 250 m.p.h. mark.

Then, if all goes well, the new machines should start coming through in February. From February to June pilots can practise constantly and by June a modification of the first of each type should be ready.

In July the Royal Aero Club should hold a seaplane meeting with a view to selecting machines to go to the States, but these tests must not take the form of eliminating trials as such trials usually result in eliminating the best machines.

Finally the machines should be shipped to the States so that three competing machines with at least three reserves and half-a-dozen pilots arrive at the venue of the event in time for machines and reserves to be fully erected a month before the contest. This will give time for practice on the course.

Showing the Flag.

And it might not be a bad idea to despatch the complete team to the States in an aircraft carrier. Not only would it impress the multitude but also it would insure us against damage caused by the collapse of temporary hangars in American weather.

No doubt all this sounds very expensive, but it has got to be done. If we had started in 1922-23 we should have achieved success at a fraction of the present cost. But that has always been our national characteristic in war and sport. We refuse to take the thing seriously at the beginning but when we do we have to pay through the nose for it.

We have only two alternatives. We have got to give up trying to go on muddling and so admit that our designers are inferior to those of the United States, or we have got to make a real effort on the above lines and win through.

If we adopt the former course we shall never regain so much of the aircraft trade of the world as we have already lost and we must admit that our fighting machines are inferior to those of the United States.

Everyone who is trying to sell British aircraft abroad will corroborate the fact that the foreign buyers all admit that British workmanship is the best in the world, but that workmanship is no good at all without performance. And to foreign buyers the outward and visible sign of performance is the winning of the great international trophies, of which the chief is the Schneider, and the holding of records. And England holds none of these.

The Air Ministry saw to it that it was well patted on the back for the "great assistance" it gave to the competing firms this year. But actually it did less than its bare duty towards the country which it should do its best to serve.

The time for playing is now past. Let the Air Ministry get down to the job at once if it has not already done so. It is not too much to say that if the Air Ministry has not already placed orders for a dozen or more racers for next year it has already contributed towards our defeat.—G. D.

THE S.B.A.C. AND THE SCHNEIDER TROPHY CONTEST.

The Society of British Aircraft Constructors has contributed £100 towards the expenses of sending the British Team to America to compete in the Schneider International Seaplane Contest. This brings the total amount received by the Royal Aero Club up to £1,000.

Considering the enormous effect of the contest on foreign markets one hopes that next year the S.B.A.C. will make a real co-operative effort to bring the Trophy back to this country and to keep it here.

For the contribution of this £100 each firm has subscribed only about £5.

THE U.S. ARMY AND THE SCHNEIDER TROPHY.

One hates to be ungenerous to a victorious foe, but there is a little lesson to be learned from the American victory in the Schneider Trophy Contest which deserves to have particular attention drawn to it. So far as most people in this country are concerned the thing that sticks in their memory is that America won the contest for the Schneider Trophy. But the fact which many people neglect to notice is that if the seaplane business had been left to the U.S. Navy the Trophy would have been won by Great Britain.

This is an interesting little moral lesson which ought to be taken to heart by all those who put their trust in navies. The story is briefly thus:—The U.S. Navy's Air Bureau, in which one hopes one still has many friends, had arranged to fly the two Curtiss Racers which were built specially for them. The U.S. Army, which really had no business at all to be playing with aeroplanes on floats, solemnly warned the Navy Bureau that the machines which the Navy had got would not finish the course because their tanks would not hold the gasolene and oil necessary for the distance. Therefore, to uphold the honour of the United States, the Army Bureau had floats fitted to the machine on which Lieut. Bettis won the Pulitzer Trophy and entered it as the American third string.

In the contest itself Lieutenants Ofstie and Cuddihy, U.S.N., both failed to finish the course, one through shortage of petrol and one through shortage of oil, just as the Army had told them. And Lieut. Doolittle, U.S. Army Air Service, won the competition.

"Peace has its victories no less renowned than war," and it would seem that just as no war has been decided by a fleet action except when the fleet has been commanded by a soldier, so even in peace time soldiers are the more dependable organisers of victory at sea.—C. G. G.

THE WORLD'S SEAPLANE SPEED RECORD.

A new World's Seaplane Speed Record was put up on Oct. 27 over the 3-km. course at Bay Shore Park, Chesapeake Bay, by Lieut. J. H. Doolittle, U.S. Army Air Service.

Flying the Curtiss R.3.C.2 (600 h.p. Curtiss V.1400 engine) with which he won the Schneider Trophy Contest, he flew over the measured course eight times and the average of the four best flights, two in either direction, gives a speed of 245.713 m.p.hr.

The new record is some seventeen miles an hour faster than the Supermarine record which was made before the S.4 had been thoroughly tuned up. It is a pity that the S.4 is now not in a state to try and better the new record.

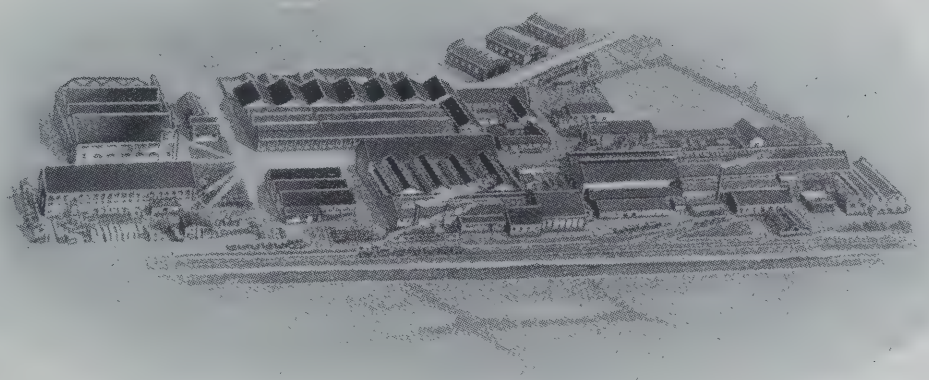
JUNKERS IN SPAIN.

A three-engined Junkers G.23 monoplane, built in Sweden, has just been delivered to the Union Aerea Espanola for use on that company's air service between Madrid and Valencia. The machine presumably flew from Malmo to Geneva over Germany and thence to Barcelona, the stage from Geneva to Barcelona being covered in exactly six hours. Further machines of the same type will be delivered if this first one is found to be satisfactory.

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THE ROYAL AIR FORCE.

The London Gazette

Oct. 27.

General Duties Branch.—Plt. Off. W. H. O. Rumfitt is granted a perm. comn. as a Flg. Off., with effect from Sept. 14, 1925, and with seniority of Sept. 14, 1924.

The following are granted S.S. comns. as Flg. Offs., with effect from and with seniority of, Oct. 26:—H. F. Jenkins, G. C. Stemp (Lt., R.A.R.O., The Buffs).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—D. C. Burnley (Apr., 15) (substituted for the notification in *Gazette* of Aug. 4); E. H. Fielden (Aug. 14); E. C. Boucher (Sept. 14); J. S. Brauch (Oct. 9) (since deceased); A. W. G. Martin (Oct. 15).

Flt. Lt. D. Daly, D.F.C., is seconded for three years duty under the Colonial Office (Oct. 14); Flt. Lt. J. A. Barron is placed on half-pay, scale B (Sept. 16) (since retired); Flt. Lt. D. W. Grinnell-Milne, M.C., D.F.C., is placed on the ret. list at his own request (Oct. 14).

The following Flg. Offs. are transferred to the Reserve:—Class A.—F. V. Gauntlett (Oct. 29). Class C.—F. L. Hudson (Lt., R.A., R.A.R.O.) (Aug. 29).

Plt. Off. on probation F. W. Giveen resigns his S.S. comn. (Oct. 21); Flg. Off. (hon. Flt. Lt.) R. S. T. Fleming (Capt., I.A., retd.), relinquishes his S.S. comn. on account of ill-health (Oct. 28); Flg. Off. B. C. W. Windle, D.F.C., relinquishes his S.S. comn. on account of ill-health (Oct. 27).

Stores Branch.—Flg. Off. M. W. Keey is placed on half-pay, scale B (Oct. 28).

Accountant Branch.—Plt. Off. on probation A. McBroom resigns his perm. comn. (Oct. 18).

Reserve of Air Force Officers.—W. B. O'Reilly Coleman is granted a comn. in Class A.A., General Duties Branch, as a Plt. Off. on probation (Oct. 13); Flg. Off. A. MacKenzie is confirmed in rank (Oct. 21); Flg. Off. G. A. Atkinson relinquishes his comn. on account of ill-health, and is permitted to retain his rank (Oct. 28); Flg. Off. H. A. Seaby resigns his comn. (Oct. 27).

Appointments.

Week ending Nov. 2.

Squadron Leaders E. H. Sparling, A.F.C., to No. 24 Sqdn., Kenley, 26/10. H. E. F. Wyncoll, O.B.E., M.C., to A.M., 26/10. B. E. Baker, D.S.O., M.C., A.F.C., to R.A.F. Depot on transfer to Home Estab., 16/10. H. J. F. Hunter, M.C., to R.A.F. Training Base, Leuchars, 8/11. R. F. S Leslie, D.S.C., D.F.C., A.F.C., to R.A.F. Base, Gosport, 28/10. H. K. Thorold, D.S.C., D.F.C., A.F.C., to No. 10 Grp. H.Q., Lee-on-Solent, 1/11.

Flight Lieutenants W E. Reason, to R.A.F. Depot, 31/10. D. W. King, to H.Q., Special Reserve and A.A.F., 12/11. G. C. O'Donnell, D.F.C., to No. 3 Grp. H.Q., Spittlegate, 26/10. A. S. G. Lee, M.C., to A.M., 4/10. S Graham, M.C., to No. 2 Wing H.Q., India, 7/10. J. W. Turton Jones, to No. 31 Sqdn., India, 26/9.

Flying Officers R. H. Bibby, to No. 2 F.T.S., Digby, 26/10. D. E. Godwin, to remain at No. 17 Sqdn., Hawkinge, instead of to No. 2 F.T.S. as previously notified. R. J. Montgomery-Moore, to Station H.Q., Andover, on transfer to Home Estab., 2/11. C. Dollery, to No. 20 Sqdn., India, 6/10. H. F. Jenkins and G. C. Stemp, to No. 24 Sqdn., Kenley, on appointment to S.S. comns., 26/10. J. C. Hill, to Electrical and Wireless School, Flowerdown, instead of to C.F.S., as previously notified, 26/10.

Pilot Officers A. W. A. Ricks, to No. 7 Sqdn., Bircham Newton, on appointment to a Perm. Comn. from R.A.F. Cadet College, 18/10. S. F. Bell, to No. 208 Sqdn., Egypt, 5/10. W. A. Cooke, to No. 47 Sqdn., Egypt, 10/10.

Accountant Branch.—Flying Officers A. H. Scaife, to Armament and Gunnery School, Eastchurch, 4/11. E. C. Green, to No. 207 Sqdn., Eastchurch, 4/11.

Medical Branch.—Flying Officer L. C. Palmer-Jones, M.B., to No. 24 Sqdn., Kenley, 29/10.

Stores Branch.—Flight Lieutenant T. A. G. Hawley, to No. 1 S. of T.T. (Apprentices), Halton, 16/10.

Flying Officers C. B. Horsfield, to No. 12 Sqdn., Andover, 16/10. H. O. Fellowes, to No. 24 Sqdn., Kenley, 16/10. W. Bourne, to No. 41 Sqdn., Northolt, 16/10.

Pilot Officer A. J. Walker, to No. S. of T.T. (Apprentices), Halton, 21/10.

The Cairo-Kano Flight.

On Oct. 27, at 07.00 hours, Sq. Ldr. A. Coningham, D.S.O., M.C., D.F.C., Flt. Lt. H. W. Baggs and Flt. Lt. H. V. Rowley, accompanied by F-S. Evans, Sjt. Kennedy and Sjt. Grant, left Helwan, Cairo, for Kano, Nigeria, in three D.H.9as (400 h.p. Liberty engines).

Their route was as follows:—Assuan, Egypt; Wady Halfa, Khartum, El Obeid and El Fasher, Sudan; Abeshr and Fort Lamy, French Equatorial Africa; Mardugari and Kano, Nigeria.

After a stay in Kano of ten days they will return by the same route to Cairo, making a short stay in Khartum.

The machines used are of the standard Service type but fitted with additional petrol tanks, larger radiators and the new oleo-pneumatic undercarriages.

A large gathering assembled at Helwan to see them off, including Lieut.-Gen. Sir Richard Haking, G.O.C. the British Troops in Egypt, and Air Vice-Marshal Sir Oliver Swann, Air Officer Commanding the R.A.F., Middle East.

Sir George Lloyd, the High Commissioner, sent a message of good wishes.

At 13.45 hours the three aeroplanes arrived at Wady Halfa.

On Oct. 28, at 14.00 hours, they arrived at Khartum.

On Oct. 29 they left Khartum early in the morning and after a stop at El Obeid arrived at El Fasher at 16.45 hours.

On Nov. 1 they arrived safely at Kano at 17.00 hours after flying a total distance of 2,600 miles under trying conditions.

The personnel suffered somewhat from the intense heat of equatorial Africa, but otherwise the flight was carried out without incident.

R.A.F. Endurance Tests.

The following report was issued by the Air Ministry on Oct. 28:—

As the culminating exercise of their training for this season, two of the long-distance bombing squadrons of the Home Defence force recently carried out endurance flights between their home aerodromes, in Kent and Hampshire respectively, and Leuchars in Scotland.

Both Squadrons are armed with Vickers Virginia aeroplanes, equipped with two Napier Lion engines of 450 h.p. each, and as this was the first occasion on which any attempt had been made to extend these bombers to the limit of their endurance, the results were awaited with considerable interest.

Five pilots left Manston at 2.35 a.m. on Sept. 24, for Leuchars, and arrived at their destination at 9.30 a.m. no trouble having been experienced during the journey.

Flares were lit at aerodromes on the route as a precaution against forced landings but the engines all ran satisfactorily and the only landing was made voluntarily at Brough with the object of remedying wireless trouble.

The bombers maintained constant communication by wireless with their home station throughout the flight.

After a short stay at Leuchars, the five aeroplanes left in company at 1 p.m. and arrived at Manston at 5.20, having experienced no trouble of any sort on the way.

With the other squadron, the intention was to fly from Worthy Down, near Winchester, to Leuchars and back without refuelling. The operation took place on Sept. 3, eight aeroplanes being employed, and although a strong northerly wind prevented the accomplishment of the original idea by delaying the first part of the journey, two pilots reached Edinburgh and returned to Winchester, a third reached Edinburgh and returned to Bedford, while another reached Leuchars and returned as far as Spittlegate, in Lincolnshire, before having to refuel. One pilot succeeded in remaining in the air for 12 hrs. 15 mins., with no special tanks and carrying a full crew.

The C.-in-C. in Sea.

A *Reuter* message to *The Times* on Oct. 28 from Malta states:—

Admiral Sir Roger Keyes, Commander-in-Chief of the Mediterranean Fleet, has been slightly injured as the result of an accident which occurred while he was inspecting H.M. aircraft carrier *Eagle* under sea-going conditions.

The machine in which he was flying was obliged to make a forced landing in the sea owing to engine failure, and the Admiral was slightly shaken and bruised, but expects to be able to return to duty within two or three days. The pilot and staff officer accompanying the Commander-in-Chief sustained some superficial cuts and bruises but were able to return to duty.

The R.A.F. War Memorial.

The Executive Committee of the Royal Air Force Memorial Fund wish to announce that on Wednesday, Nov. 11, next, a wreath will be deposited at the Memorial on the Victoria Embarkment at 11.45 a.m. by the Chief of the Air Staff, Air Chief Marshal Sir H. M. Trenchard, Bart., G.C.B., D.S.O. The Air Chief Marshal will be accompanied by the Chaplain-in-Chief, Royal Air Force, and a small personal staff, and by Members of the Executive Committee, and others, and the ceremony will be quite informal and very brief. All relations and friends interested are invited to attend.

Should any relatives or friends living at a distance from London desire to send wreaths to be placed on the Memorial, the Secretary of the Fund will be pleased to do so, but it is essential that any such wreaths should reach him at the offices of the Fund, at 7, Iddesleigh House, Caxton Street, London, S.W.1, not later than 4 p.m. on Tuesday, Nov. 10.

Skill at Arms.

On Nov. 2, the Secretary of State for Air presented to Flt. Lt. Frederick G. Sherriff, M.C., Royal Air Force, of the R.A.F. School of Physical Training, Uxbridge, the "Skill at Arms" certificate which was awarded to him for his success at the Royal Tournament held in June last. This certificate is awarded to any dismounted competitor who reaches the first six in three different competitions in the Inter-Services Championships with three different weapons. Flt. Lt. Sherriff was first with Foils, third with Epee, fifth with Sabre, and sixth with Bayonet.

This is the second year in succession in which a "Skill at Arms" certificate has been won by Flt. Lt. Sherriff.

The Great Yarmouth Dinner.

The Sixth Annual Reunion Dinner of former Officers of the old R.N.A.S. and R.A.F. Station, Great Yarmouth, was held, as is its wont, "on the last Saturday in October," at the Café Royal, and was, as usual, a splendid success.

This Dinner is now the senior of all such Air Service functions and

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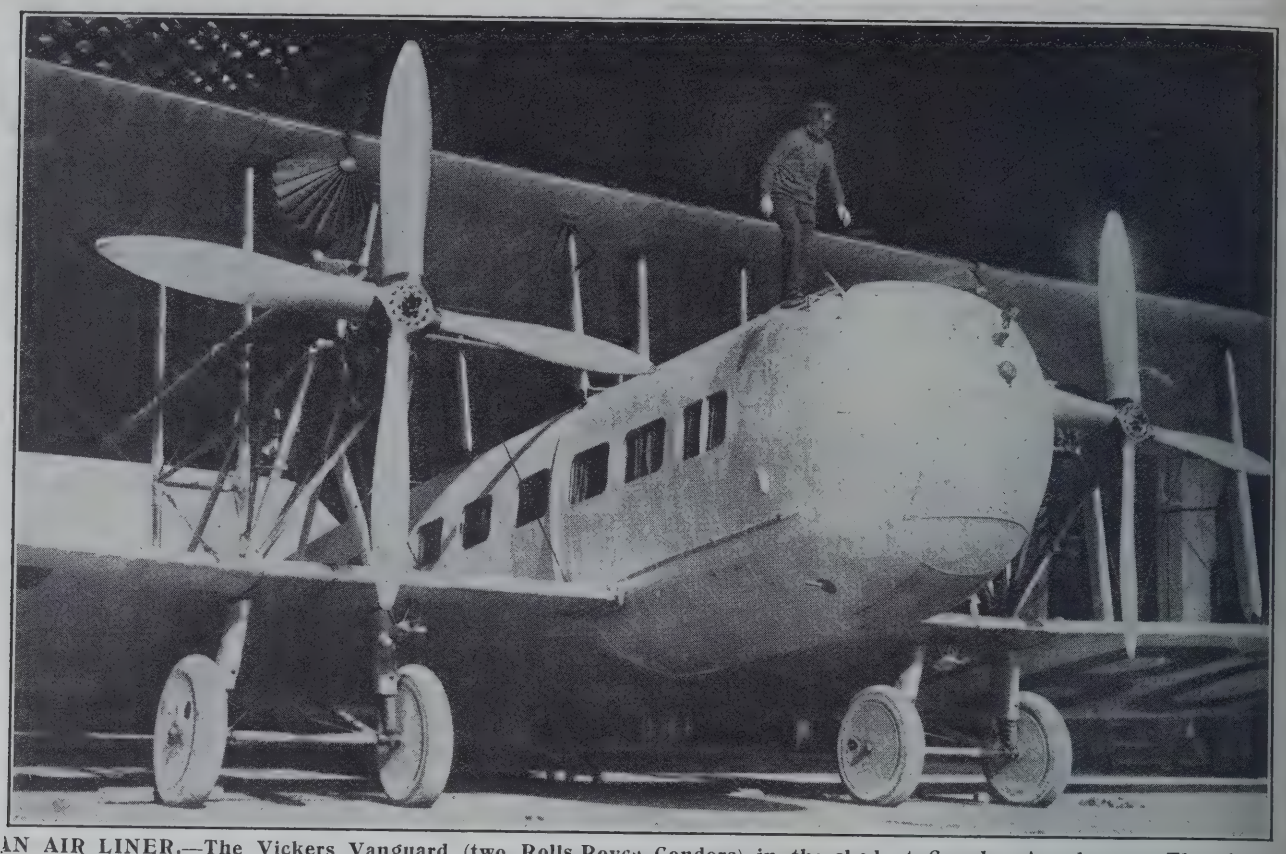
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IN 11 MINS. 34 SECS.
OPHY CONTEST, 1925. —

ESPONDING WITH ADVERTISERS.



AN AIR LINER.—The Vickers Vanguard (two Rolls-Royce Condors) in the shed at Croydon Aerodrome. The size of the machine can be seen by comparison with the man standing on the nose.

on this occasion some thirty-three officers gathered together, under the presidency of Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C. That such a number should turn up after six years of peace is a fitting commentary on the wonderful *esprit de corps* that was the driving spirit of this old Station.

All the familiar faces were there—"Ratty" Chambers (now on the Naval Air Staff)—"Bob" Leckie (a shining light in the Coastal Area), Egbert Cadbury (now a professed "economist"), "Feathers" (a bulwark of commerce), "John" Hodson, "Jerry" Livock (now a cricket star and likely to play for England), "Doc." Holman (who still remembers his anthem), "Blossom" (to whom the Dinner and its success is due), Guard, Burton, "Siddons," "Bogey" Bolton, "Tiny" Galpin, Gaskell, Brosse, Armitt, "Beary" Barwell, Bridgman (he draws aeroplanes so well because he saw real ones at Yarmouth), Gamble (as rude as ever and untamed by marriage), and many others. Vincent Nichol was, unfortunately, unable to attend owing to illness.

The customary speeches were made, the usual insults exchanged and we gathered together and told stories of the days when the Boats were booming over the North Sea on multi-coloured patrols (Oh! Ye new Air Force, splendid as you be, we sometimes wonder if you really know what Naval Air Stations, and particularly the Boats and their supporting land machines, did in those old days).

We told these stories with a tinge of sadness, for we realised that never to us will come again such glorious days, when we tried to live up to the spirit of the Air Services—"Pro Patria Volans."—

C. F. S.-G

Association Football.

On Saturday, Oct. 31, at Tottenham, the Tottenham Hotspur F.C. beat the Royal Air Force by 11 goals to 2.

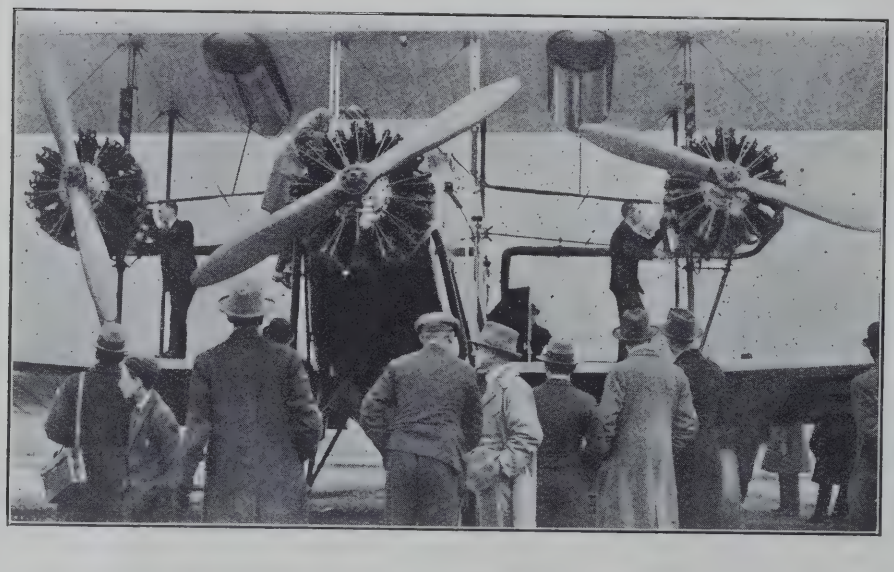
Tottenham team played excellent football, though heavy fog enveloped the ground, which was slippery, and the greasy ball appeared very heavy. The Royal Air Force suffered from an apparent attack of "stage fright" and never settled down until ten minutes from the end, with the result that the home team did very much as they pleased.

The game, however, should prove very instructive, as an object-lesson showing how five forwards can combine so smoothly, making their passes with complete accuracy—the half-backs marking their opponents and feeding their own forwards, at the same time displaying complete ball control, and the backs by very clear anticipation quickly breaking up the openings of the opposing forwards and clearing the ball most times to one of their own side.

Kirk, Francis and Mason, on the few opportunities they had, tried to make openings and generally played quite well, F-S. Fretwell worked very hard at back—making some very good clearances; but the goal-keeper had a very off day.

The team was as follows:—

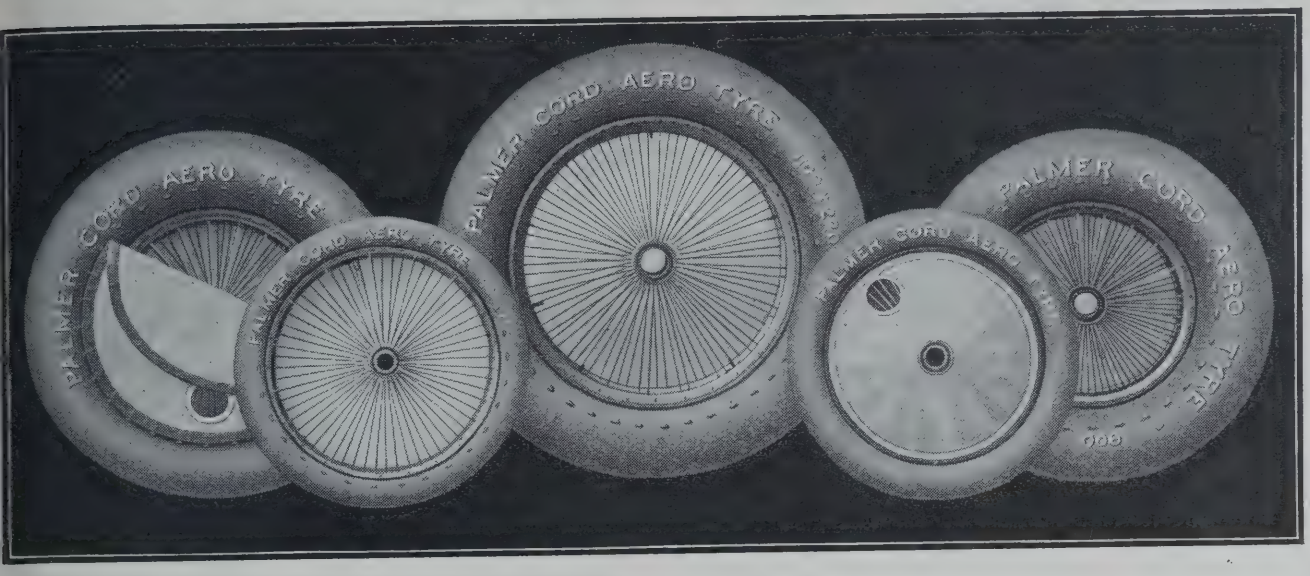
L-AC. Locke (Manston), goal); AC. Owens (Calshot) and F-S. Fretwell (Hawkinge), backs; AC. Robinson (Henlow), Flg. Off. Dickson (Cranwell) and L-AC. Underhill (Andover), half-backs; Sjt. Francis (Cranwell), Flg. Off. Williams (Cranwell) (captain), AC. Bishop (Henlow), AC. Kirk (Bircham Newton) and AC. Mason (Henlow), forwards.



THE CHRYSANTHEMUM SHOW.—A view of the engine mounting on the Handley Page Hampstead which was built for Imperial Airways Ltd. The engines are Jaguars of the Chrysanthemum type (as opposed to the single-row, or Dahlia, type of which the Bristol Jupiter is the leading exponent). In front of the machine Mr. R. Brenard is seen explaining the works of the machine to Major C. C. Turner.

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Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line	Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line	Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m			m/m	m/m	m/m			m/m	m/m	m/m
375×55	168	111.12	25.4	Central	700×100	99	178.	38.89	132/46	1000×150	201	185.	60.32	125/60
					,,	112	150.	38.09	Central	,,	210	185.	60.32	Central
300×60	16	111.12	25.4	Central										
,,	17	72.39	12.7	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
					,,	147	178.	55.	Central	,,	149	185.	55.	Central
450×60	30	89.	31.75	Central						,,	155	220.	66.67	Central
,,	138	130.	38.09	Central	750×125	77	178.	44.45	132/46	,,	166	185.	55.	125/60
					,,	92	185.	55.	135/50					
575×60	21	160.	28.	Central	,,	95	185.	55.	Central	900×230	107	185.	55.	Central
,,	34	150.	31.75	104/46	,,	96	178.	55.	132/46	,,	108	185.	55.	125/60
,,	111	150.	38.09	104/46	,,	99	178.	38.89	132/46	,,	128	220.	66.67	Central
					,,	112	150.	38.09	Central	,,	137	250.	80.	Central
600×75	21	160.	28.	Central	,,					,,	202	185.	60.32	Central
,,	34	150.	31.75	104/46										
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50	1100×220	134	220.	66.67	Central
					,,	85	185.	55.	Central	,,	136	250.	80.	Central
700×75	78	178.	44.45	132/46	,,	161*	185.	55.	135/50					
,,	79	178.	44.45	Central	,,	163*	185.	66.67	135/50					
,,	100	178.	38.09	132/46	,,	169†	185.	55.	135/50	1250×250	133	250.	80.	Central
,,	101	178.	31.75	132/46	,,	211*	185.	60.32	135/50	,,	154	304.8	101.6	Central
700×100	77	178.	44.45	132/46	1000×150	131	220.	66.67	Central	1500×300	115	304.8	101.6	Central
,,	92	185.	55.	135/50	,,	150	185.	55.	Central	,,	126	304.8	152.4	Central
,,	95	185.	55.	Central	,,	167	185.	55.	125/60					
,,	96	178.	55.	132/46	,,	174	250.	80.	Central	1750×300	139	400.	152.4	Central

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THE NEW YORK AIR RACES.

The New York Air Races were held at Mitchel Field, Long Island, N.Y., between the dates Oct. 8 and Oct. 13. The meeting was originally planned to take place on Oct. 8-11, but owing to a gale and torrential rain on a portion of Oct. 9 and all of Oct. 10, events scratched on those days were held on Oct. 12 and 13.

The same trouble seems to have taken place this year as with previous Race Meetings. According to *The New York Times*, Mitchel Field was more military during the Meeting than it has been since the War and whichever way anyone turned there was a sentry with fixed bayonet ready to repel those not dignified with an official badge. Among those who were hindered owing to non-possession of the magic armlet, of which there was a great shortage, were Brig.-Gen. Fechet, Assistant Chief of the Army Air Service, Admiral Moffett, Chief of the Bureau of Naval Aeronautics, Congressman Lampert, the Editor of *Aviation*, and many other important people. So strong were the protests against this hindrance that on the last day this show of military authority was abandoned.

To the Press, technical and general, little assistance was given. The operations office, the tarmac where pilots gathered, and the judges' stand were inaccessible, and photographers and reporters were herded into enclosures and only let out in parties under a responsible guide, much in the same way as one would treat harmless lunatics.

The visiting crowds were disappointing, and rows of boxes or pens remained empty until prices were brought down to a mere nothing. The poor attendance can be attributed to the appalling weather during the latter portion of the Meeting.

On the first day only 5,000 were present, and perhaps their experience of militarism coupled with the resentment of the Press at their treatment did something towards discouraging thousands of peace-loving American citizens from battling out to Mitchel Field only to spend the day in a species of internment camp.

On-to-New York.

The event that precedes every big American Race Meeting is called an "On-to-Anywhere" event. This is designed to encourage aerial visitors and to those who fly the longest distance en route to wherever the Meeting is being held and who carry most passengers at the greatest speed for the lowest petrol and oil consumption and on the lowest compatible horse power are awarded prizes. For the "On-To-New York" race there was awarded the New York Chapter National Aircraft Association Trophy.

On arrival at their destination these aerial visitors were incarcerated in an enclosure, so aptly termed Hell's Half Acre at Dayton last year, as far away from the crowd as it was possible to place them. And only by a long walk across the field after the closing of the day's events was it possible for anyone to examine the aircraft.

The On-to-New York event this year was won by Mr. K. W. Montee, who flew a Montee Special biplane (125 h.p. Curtiss O.X.5 engine) complete with one passenger, from Santa Monica, California, a distance of 2,487 miles, in 9 days 1 hr. 18 mins. Second place went to E. L. Ramlin, also from Santa Monica, on a Montee M.R.1 monoplane (143 h.p. Curtiss K.6 engine). The increased horse power of the K.6 engine resulted in Ramlin scoring only 489.5 against Montee's 498.1 points of merit.

To qualify for the event pilots had to cover at least 200 miles before reaching Mitchel Field. Seventeen machines competed, and six, including the two already mentioned, covered over 1,000 miles.

A Bad Start.

The first day's contest started with a Free-for-All Race for two-seater, low-power, civilian-owned-and-flown aircraft for the Glenn Curtiss Trophy. There were in this event fifteen starters, who were sent off in three batches of five. The last batch consisted of four aircraft only, as C. D. Chamberlain had not arrived at the actual time of the start.

Chamberlain arrived by air just before the departure of the last group, and weighing-in rapidly, he obtained permission to start, in spite of his late arrival. Just as he was taxying out Mr. Laurence Burnelli ran out and jumped into the passenger's seat. Hardly had the machine disappeared from view when the news came through that he had crashed at Hempstead and that the passenger had been killed and the pilot seriously injured. The machine used was one that had been constructed in 1918 by the Maryland Pressed Steel Co. as a single-seat biplane. It had been stored mostly in the open until it was purchased by Chamberlain this spring. He removed the top plane and braced the bottom plane with slanting struts, installed a new Wright L.4 engine of 50 h.p. and fitted an extra seat in front of the pilot's seat. The pilot had been warned previously not to take a passenger. This unfortunate accident seems to indicate, in spite of some people's views to the contrary, that some form of official inspection is necessary, at least for civilian aircraft entered for the big races.

The race, over eight laps of 12 miles each, was won by B. L. Rowe on a Thomas Morse S.4E (105 h.p. Aeromarine engine) at a speed of 102.9 m.p.hr. E. P. Lott, on a Thomas Morse S.A.B. (125 h.p. Curtiss O.X.5 engine) was second, at 100.7 m.p.hr., and C. D. Ernick, on the Hartzell F.C.2 (125 h.p. Curtiss O.X.5 engine) was third, at 94.3 m.p.hr.

After this race a Martin Bomber and a D.H. released three parachute jumpers from a height of 4,000 feet.

Event No. 2 was open to two-, three-, or four-seater civilian machines with engines of not more than 800 cub in. (200 h.p.) cylinder displacement, for the Merchants' Association of New York Trophy.

The course consisted of eight laps, covering in all 100 miles. The winner was the redoubtable "Casey" Jones, who, flying a clipped-wing Curtiss Oriole (150 h.p. Curtiss C.6 engine), averaged 134.2 m.p.hr., or over 5 m.p.hr. faster than the Breguet XIX fitted with a 450 h.p. Renault engine that won the Liberty Engine Builders' Trophy Race later in the day.

F. R. Becker, in a Bellanca monoplane (200 h.p. Wright Whirlwind engine) was second, at 121.8 m.p.hr., and B. L. Rowe, on a S.V.A. (180 h.p. Aeromarine U.S.D. engine) third, at 121.5 m.p.hr.

After this event members of the 1st Pursuit Group, U.S.A.S., mounted on Curtiss P.W.8 single-seaters (400 h.p. Curtiss D.12 engines), gave an exhibition of formation and trick flying. Meanwhile a Curtiss Jenny fitted with five dummy heads along the fuselage, after the manner of the crazy Avro that used to be a feature of the R.A.F. Pageants, played about in front of the Grand Stand.

A Military Race.

The next event was the race for the Liberty Engine Builders' Trophy for two-seater observation aircraft. This was international in character owing to the entry of two Breguet XIX biplanes, one fitted with the 450 h.p. Renault and one with the 400 h.p. Lorraine-Dietrich engine.

Originally these were entered by M. Louis Breguet, but owing to the fact that technically this constituted a civilian entry, various objections were raised. With commendable promptitude the French War Department came to the rescue and took over M. Breguet's entry, thus satisfying the demands of the Contest Committee.

In addition to the two Breguets there were fourteen other entries by the U.S. Army and Navy. Eleven were Army and three Navy entries, and consisted of one C.O.6 fitted with an inverted Liberty engine and developed by McCook Field Experimental Station, one Douglas X.O.2 (400 h.p. Liberty engine), and sundry D.H.4B aircraft, only one of which was perfectly standard, all fitted with Liberty engines. The three Navy entries were two Boeing O.2.B.1s of D.H. parentage and one D.H.4B.

The race was over fifteen laps of 12 miles each, making 180 miles in all. The sixteen entries were divided into three groups and started off with a few minutes interval between the starting of each group.

The finish was close and resulted in a win for Capt. Lemaitre of the Breguet-Renault at 129.1 m.p.hr., with Lieut. E. B. Bayley, U.S. Army, on the Douglas X.O.2 at 128.3 m.p.hr. second, Lieut. G. R. Henderson, U.S. Navy, on a Boeing O.2.B.1 at 127.9 m.p.hr. third, Capt. Pelletier Doisy on the Breguet-Lorraine at 127.4 m.p.hr. fourth, and Lieuts. McReynolds and Clark, both on D.H.s, fifth and sixth at 126 and 125.4 m.p.hr. respectively.

The French win in this race allows the next competition for this Trophy to be held in France and it is hoped that some British entries can be made for next year.

There was considerable surprise at the slow speed of the Douglas X.O.2. This machine is of the type that is now being built in quantity to replace the D.H. as the standard U.S. Army two-seater reconnaissance machine, and in official tests at McCook Field this machine was credited with a top speed of 150 m.p.hr.

The C.O.6 was the only machine to drop out of the race and when it did so it was leading by a comfortable margin.

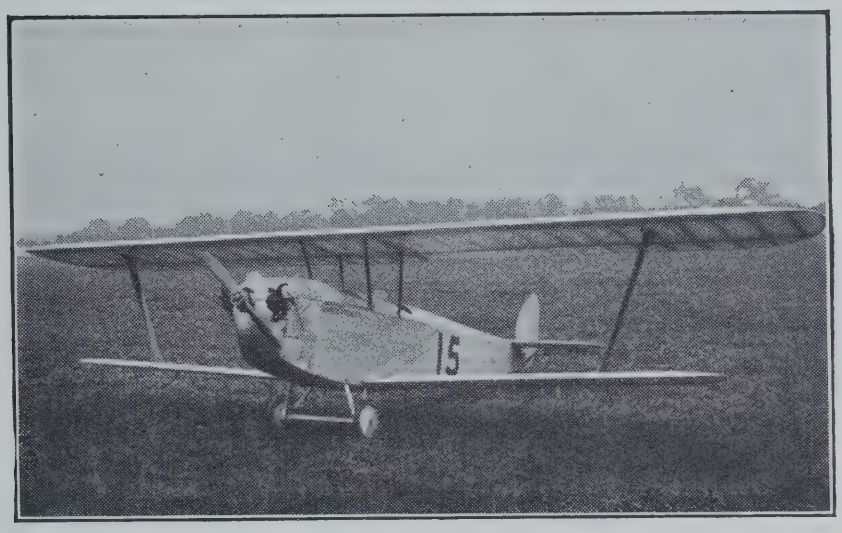
Speed and Efficiency.

On Friday, Oct. 9, the weather was bad, and the first event, one for rubber-driven models, was finally postponed after an unsuccessful start.

The next event was for the Aviation Town and Country Club of Detroit Trophy for two-seater commercial aircraft with engines of not more than 800 cub. in. cylinder displacement. This was an efficiency contest rather than a race, points being awarded on a formula involving load carried,

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speed and power. Fourteen aircraft started over the 100-mile course.

"Casey" Jones on a Curtiss Oriole with a Curtiss C.6 engine won the speed section with 128.4 m.p.hr., with B. L. Rowe on an S.V.A. and Becker on a Wright-Bellanca, second and third at 119.8 and 112 m.p.hr. respectively.

In the efficiency section, Becker of the Wright-Bellanca scored 597.5 points, with "Casey" Jones second with 394.8 points, and R. H. Depew on a Sikorsky S.-31.-A with a Wright Whirlwind engine third with 392.9 points. Jones in this race was over 20 m.p.hr. faster than his nearest competitor, and with the exception of Rowe he had lapped the whole field by the end of the fifth lap.

After this race all further events were postponed. Later continuous rain set in.

The next day, Saturday, was fine but the wind was very high, so that all Saturday's events were postponed until Monday, and Friday's events until the following Tuesday.

A Bristol Win.

On Monday, Oct. 12, the weather was favourable but a ground-mist made flying a set course difficult.

The first race of the day was for the Scientific American Trophy for Light Aeroplanes. There were eight entries, all but one being fitted with motor-cycle engines of Harley-Davidson or Henderson type.

The one exception was the Powell "Racer" fitted with the Bristol Cherub engine. This machine proved to be the most efficient of the light aeroplanes and piloted by Terry Dack won this trophy at a speed of 76.1 m.p.hr., with Clyde Ernick on the Johnson Bumble Bee with a Henderson engine second at 67.5 m.p.hr., E. Dormoy on a Dormoy also with a Henderson engine third at 52.2 m.p.hr., and H. C. Mummert on a Mummert monoplane with a Harley-Davidson engine fourth at 48.5 m.p.hr. Two other competitors did not complete the first lap of the 50-mile course.

After this race Bert Acosta flew round on a 1912 Curtiss biplane and later Lieut. Doolittle gave a wonderful exhibition of trick flying on one of the new Curtiss P.1 pursuit ships.

The Pursuit Ships.

At 13.00 hours ten Curtiss P.W.8 pursuit aircraft of the 1st Pursuit Group lined up to compete for the John L. Mitchell Trophy but owing to a high wind the start was postponed for half-an-hour. The course was ten laps of 12 miles each. All the machines were of an identical type fitted with the same type of engine. This race brought out the individual skill of the pilot more than any other.

The winner was Lieut. T. K. Matthews at 161.5 m.p.hr., with Lieuts. F. Schulgen and A. J. Lyon tying for second place at 158.7 m.p.hr.

The winning speed compares unfavourably with Lieut. Cyrus Bettis' speed of 175.4 m.p.hr. made last year. This year however there were ten laps of 12 miles each, whereas last year there were only four laps of 31 miles each, the increased number of turning points obviously cutting down the speed. Only one machine dropped out with engine trouble. Lieut. Matthew's win qualifies him to compete in the Pulitzer Trophy Race next year.

The Pulitzer Race.

The next event was for the Pulitzer Trophy and by the time this was due to take place over 50,000 people had assembled in the enclosures. There were six entries, two Curtiss 1925 Racers flown by Lieut. Bettis, U.S. Army, and Lieut. Williams, U.S. Navy, one Curtiss P.1 flown by Lieut. Dawson, U.S. Army, and three Curtiss P.W.8s flown by 1st Lieut. H. J. Norton, U.S. Marine Corps, Lieut. Cuddihy, U.S. Navy, and Capt. H. W. Cook, U.S. Army, all except the two 1925 Racers being equipped with standard Curtiss D.12 engines.

Shortly after 15.00 hours Lieut. Williams started, closely followed by Lieut. Bettis. Owing to the machines crossing the starting line with a long interval between, the spirit of the race was lost in so far as the spectators were concerned. Both machines flew at a constant height of 300 feet and both pilots gradually improved their lap times until Lieut. Bettis finally crossed the line a winner at 248.975 m.p.hr., with Lieut. Williams second at 241.695 m.p.hr.

The second heat of four slower machines then took off to compete for third place. Lieut. Cuddihy dropped out with engine trouble on the third lap. Lieut. Dawson eventually won third place with 169.9 m.p.hr., with Lieut. Norton fourth at 168.8 m.p.hr., and Capt. Cook fifth at 167.4 m.p.hr.

The disappointing speeds of the racers may be attributed very largely to the shape of the course and the windy weather that prevailed.

The Bristol Cherub Again.

On Tuesday, Oct. 13, the events that were postponed from Friday, Oct. 9, were held under good weather conditions.

The first event was for the Dayton Daily News Trophy for light aeroplanes and again resulted in a win for the Cherub-engined Powell Racer, this time flown by Joseph Faucher, at a speed of 71.16 m.p.hr. over the 50-mile course. After this race was over the Powell Racer went for an altitude test and in 38 mins. it reached a height of 9,800 feet.

The Heavy Ships.

The last event was for the Detroit Daily News Air Transport Trophy for large commercial transport aircraft. Owing to the lack of this type of aeroplane in America the entries for this race were made up of various large bombers and other military aircraft of heavy carrying capacity.

These included a Huff-Daland X.L.B. heavy bomber (800 h.p. Packard engine); three Douglas D.T.4s (two with the 450 h.p. Wright T.3A engine and one with a 400 h.p. Liberty engine); three Douglas Transport C.1s (400 h.p. Liberty engines); two Martin Bombers (two 400 h.p. Liberty engines each); two Martin S.C.6 torpedo-carriers (450 h.p. Wright T.3A engines); and two Epicyclic C.1s (400 h.p. Liberty engines).

The Huff-Daland Bomber, an entirely new machine and piloted by Lieut. E. E. Harmon, covered the 120-mile course at 119.91 m.p.hr., with a Douglas D.T.4-Wright second at 118.15 m.p.hr., an Epicyclic C.1 third at 113.58 m.p.hr., and a Martin Bomber fourth at 112.47 m.p.hr. Three machines dropped out of the race.

On the whole the speeds for most of this year's events compare unfavourably with those made in similar events last year. Largely this can be attributed to the unfavourable weather, strong cross winds, and bad visibility. Also in many cases although the length of the course was the same as last year the length of the laps was shortened, thus increasing their number together with number of turning points.

In the Pulitzer Race this year the diving start was prohibited to prevent a possibility of an accident such as occurred to Lieut. Skeel last year when his machine burst while he was diving on the starting line.

Lieut. Bettis beat the World's Records for speed over the 100 km. and 200 km. distances although his winning speed of 248.99 m.p.hr. was only five miles per hour faster than Lieut. Williams' winning speed in 1923.

Concurrently with the Air Races held at Mitchel Field the National Aeronautic Association held its annual Convention in New York at the Pennsylvania Hotel. Mr. Cabot was re-elected President, Mr. Carl H. Wolfley Vice-President, Mr. Donald Douglas, the constructor of the World Cruisers, Secretary, and Col. Benjamin Castle as Treasurer.

Admiral Fullam was appointed chief adviser to the President of the N.A.A. and Mr. Porter Adams his *aide*. According to *Aviation*, owing to the prevalence of the Naval element re-elected to the N.A.A., a reactionary policy has been adopted again this year.

GOOD PROPAGANDA.

The Berkshire Aviation tours have been recently working at Stratford-on-Avon and Kettering. While at Stratford the firm's pilots took up 500 passengers on the first Sunday and 450 on the second Sunday. At Kettering, with four machines at work, they took up 442 passengers on their first Sunday and 377 on Sunday, Nov. 1, although it was dull and raining in the morning.

It is interesting to note that apparently people in the Provinces are still quite keenly interested on seeing aeroplanes at close quarters as well as in flying in them, as is proved by the fact that on each of these four Sundays approximately 2,500 people paid to come on the field where the flying was done.

Mr. J. D. Parkinson, the firm's senior pilot, has put up the excellent performance of carrying 4,044 passengers in six months, all without incident of any kind. Mr. Parkinson must by now pretty well hold the record for the number of passengers carried, seeing that all the earlier pilots who carried large numbers of passengers, such as Mr. Alan Cobham and Mr. O. P. Jones and Mr. Sparks, have given up joy-ride flying and taken to a less gypsy-like existence.

A TEST PILOT.

If any manufacturer wants really careful and skilful testing done one can recommend them to Mr. L. R. Tait-Cox, who is at present at liberty to take on some outside work as there is comparatively little skywriting doing in this weather.

Apart from doing good service during the war, Mr. Tait-Cox distinguished himself soon after the outbreak of peace as a clever pilot on high speed machines, first on Nieuport Nighthawks and later on the Goshawk, on which machine he broke the British speed record with 166 m.p.h. in July, 1920. His success as a sky-writer is of itself evidence of his ability as a pilot. But, apart from being a skilful pilot, he understands aeroplanes thoroughly and is capable of giving a clear and concise report of their peculiarities and/or defects. Any manufacturer who would like to get in touch with him is invited to write to the office of The Aeroplane.

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WHAT IS WRONG WITH BRITISH CIVIL AVIATION?—II.

Accidents.

Twelve accidents notifiable under Air Navigation Regulations occurred during the twelve months. This is about half the number of the previous year. Four of these occurred on established air routes (i.e., Imperial Airways), one on a hire service, six on short passenger flights and one on construction trials. One of these (the Croydon Christmas Eve disaster) led to loss of life, none of the others led to more than trifling injuries to personnel. These accidents are attributed as to four to error of judgment, two to defect in aircraft structure or controls, two to defect in engine or installation, one to weather conditions, and three to other causes. (It may be noted that this analysis covering all branches of flying gives a widely different distribution of causes from Sir Sefton Brancker's analysis of an equal number of accidents in Air Line work only.)

In addition two accidents of a serious nature occurred to military aeroplanes under test at the constructor's works. One was to a single-seater which broke when stunted violently by a foreign military pilot, and one to an experimental type which stalled taking-off.

Also two French commercial aircraft suffered accidents due to engine failure in British territory during this period. Considering that French aircraft during this period carried out at least as much flying over British territory as the British Air Lines it would appear that we have no greater immunity from accident than have they.

Flying Statistics.

A good deal of statistical information as to British Civil Flying is given in the form of tables. What is described as a slight fall of from 1,004,000 to 890,000 miles and from 15,013 to 13,478 passengers carried in connection with regular transport. This is accounted for by (a) the trouble of Imperial Airways during their first three months at work, (b) the discontinuance of the Channel Islands Service, and (c) reduction in the work of De Havilland Hire Service. Goods traffic, however, increased from 427.1 to 508 tons—showing, the report says, the success of the efforts of Imperial Airways to increase this branch of their business. The gain of 81 tons is equivalent so far as weight goes to a gain of under 900 passengers—considerably less than the loss in passengers—and so far as revenue is concerned, probably to about 200 London-Paris single fares. This may be a successful effort, but it scarcely seems a commercial one.

Other flying for "reward or hire," mainly "joy-ride" flying, showed an all-round increase, mileage rising from 120,000 to 139,000, and passengers from 39,227 to 43,766. No comment is made as to the successful effect involved in this increase of internal flying.

Total flights between Britain and the Continent—including those by foreign aircraft—increased in number from 4,665 to 4,832. Passengers carried rose correspondingly from 14,777 to 17,835. The British share of passenger traffic declined from 79 per cent in 1923/24 to 58 per cent. 1924/25. Evidence so far suggests that the proportion has fallen still further since Apr. 1 and is now below 50 per cent. of the total. So that while air traffic with Britain as a whole is steadily increasing, the portion of that traffic handled by British machines is decreasing. This barely supports Sir Sefton Brancker's claim that all the troubles of British Civil Aviation are to be attributed to the defects of aircraft and none of them to defaults on the part of air line operations.

A table giving the value of imports and exports by air into Britain by both British and foreign machines shows a marked rise from £883,233 to £1,328,395. As no figures for the total weights are given it is not possible to discover whether the increase in cargo carried by Imperial Airways is a fair proportion of the total increase in goods traffic, and the rise in value is due to the increased intrinsic value of cargoes, or whether Imperial Airways' proportion of goods traffic has declined *pro rata* with its share of the passengers. It may be suspected that the goods traffic has increased in volume in fair proportion to the values above given, and that the increased traffic of this type gained by the British line is but an overflow fraction of the total increase.

A table given showing the so-called Efficiency of the British Air Lines is again included. This shows 94 per cent. of completed uninterrupted flights—which compares favourably with previous figures. Unfortunately the basis on which this figure is computed is not the same as that of previous tables. Landings for fuel and oil are not counted as interruptions, the category of flights completed within a defined period is omitted, so that possibly the figures conceal an increased irregularity.

A tabular analysis of the causes of involuntary landings supplies interesting information. This relates to the subsidised services only. Excluding stops for petrol and oil there were 286 interruptions to 4,328 flights. On 22 flights two interruptions occurred so that there were 264 interrupted flights.

Weather (bad visibility) accounts for 144 interruptions, engine or installation failure for 96, and "other reasons" for 46. It is regrettable that these other reasons are not further dissected.

A final table statistifies accident data. With the limited volume of flying of the moment these statistics are not of great value. The one bad accident at Croydon in December accounts for all the deaths of the year 1924/25 under the head of flying for hire. Had it occurred a little over three months later the overall statistics for six years would have been unaltered, whereas those for the one year would have altered beyond recognition. The nearest approach to a fair view of the position is gained by taking the longest possible period as a basis.

Over the six years regular air transport accounts for the death of 13 passengers, and eight pilots, for 18,240 flights, 3,698,000 miles and 52,552 passengers carried. This is one passenger killed per 1,403 flights, per 284,466 miles flown, and per 4,042 passengers.

If other flying for hire is considered, eight more passengers were killed for about 140,000 flights, 1,400,000 miles, and 247,773 passengers. Thus for "joy-riding" the passenger fatalities are one per 17,500 flights, per 175,000 miles, and per 30,972 passengers carried. Thus regular transport is less safe than joy-riding except upon the miles flown basis. It seems fairly obvious that this should be the case—the only reasonably sound basis of comparison is on the basis of accidents per passenger mile of traffic actually carried. Machine mileage is not proportional to passenger mileage, but is more nearly so than that of the other figures of number of flights or passengers.

The average transport stage is evidently of the order of 200 miles, the average joy-ride apparently about 10 miles. If these distances are multiplied by number of passengers in each case, an approximate figure for passenger miles is obtained. This gives 10,500,000 passenger miles for the air lines and 310,000 passenger miles for joy-rides. On this basis air lines killed one passenger per 807,000 passenger miles, and other flying for hire one passenger per 38,700 passenger miles.

The average life therefore of a regular air-line passenger may be put down at 8,070 hours' flying at 100 m.p.h.—assuming that he survives all the other perils of life and dies as the result of an aircraft accident. It scarcely seems a serious risk.

Civil Flying Abroad.

A good deal of space is devoted to a survey of flying in other countries. This survey is necessarily cursory and gives little information not previously available.

The Economics of British Air Transport.

With the information available from both the official report and Sir Sefton Brancker's paper, it seems possible to arrive at some conclusions of a useful nature as to the cause of the present state of British Civil Aviation.

On a passenger-mile basis (that is passengers actually carried), British civil aviation since August, 1919, appears to have been composed of more than 97 per cent. air-line transport and less than 3 per cent. of unsubsidised flying. Taking into account work not involving the carriage of passengers, the air-line percentage should be slightly reduced.

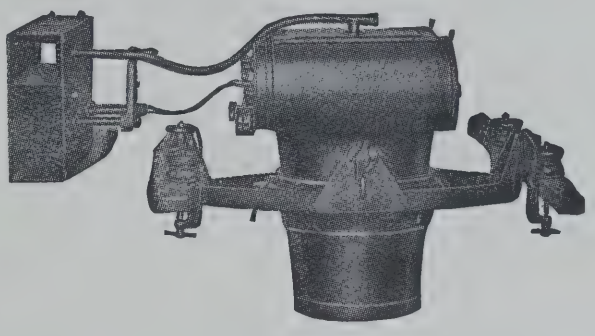
During the last year for which data are available, the percentage of traffic represented by air-line work has decreased to 90 per cent. of the whole. Other flying now represents approximately 10 per cent. as against below 3 per cent. for the whole period. Air-line transport is losing ground despite heavy direct financial assistance, unsubsidised commercial effort is increasing. Despite subsidies, the air lines lose money and lose business. Without such aids the aeroplane can obviously be made to pay in other classes of work.

This suggests that in backing the air lines the Air Ministry have backed the wrong horse. It may be objected that the air line business has an ultimate importance that justifies its support in the initial stages of development and that eventually it will repay the community for the sums expended on it, if not in cash at least in services rendered. To justify this view it must be shown that signs of progress are discernible. After six years they are not discernible. Why is this? Broadly speaking, there are two answers. One is that this particular business is not ripe for development—the other that that business is not properly and economically managed. What is the truth? The official report has nothing directly to say on these questions. Sir Sefton Brancker however says quite a lot. He definitely implies that the air lines are properly and efficiently managed—and attributes failure solely to the defects of the aeroplanes available for their operations.

In other words, taking aeroplanes as they now are, air-line business is not ripe for development as a commercial undertaking. It may be pointed out that it is possible that the

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present air lines are not the most promising field for development with the aeroplane in its present defective state. Even so, apparently it is believed in certain exalted circles that a sufficiently improved aeroplane can speedily be produced that will render existing services commercial propositions. Can this belief be justified?

Owing to the lack of precise data as to the results achieved by Imperial Airways, it is difficult to answer this question accurately. Sir Sefton Brancker however gives some figures which are useful in attempting to form an estimate.

He gives 3s. per ton mile as the operating costs, and 2s. per ton mile as a sufficiently high overhead cost for existing machines, operated—quite obviously—as they are operated to-day on the present air lines.

During 1924/25 the British air line flew 825,000 machine miles. Most of this mileage was divided between D.H.34s and W.8bs, with the 34s leading. If the average pay-load capacity is taken as the average of the 34 and the W.8, the total ton mileage of Imperial Airways will certainly be overestimated. Taking .9 tons as the average capacity, Imperial Airways put up 736,500 ton miles in this year. Call it 750,000 to be quite safe. Their total costs on this basis—and Sir Sefton Brancker's figures—should not have exceeded £187,500 for the year. £131,500 according to the unofficial, £137,000 according to the official, record, was received in subsidy. Their operations were not successful financially. Therefore either their costs were greater than there is authority for stating they should be, or their total earned revenue did not exceed £55,500.

But from the figures for traffic and the advertised rates of fare, the revenue should have approached £100,000. If their costs were not excessive, 45 per cent. of their traffic must have been what in theatrical circles is known as "paper." If their traffic paid its full fare their total costs amounted at least to 6s. 1d. per ton mile—20 per cent. in excess of an "imaginary but sufficiently high figure." Actually, it can be said that any excess actually incurred must be charged mainly to overhead charges.

It can also be verified that the subsidy alone amounts to 3s. 6d. per ton mile—01 6d. in excess of the operating costs that can reasonably be expected. Thus in any event the earned revenue of Imperial Airways is definitely less than the overhead charges involved in earning it. On the most plausible estimate of their over-all performance, overhead charges amounted to at least £75,000 for an earned revenue of not more than £55,000. This does not suggest a sound business.

As to the future, Sir Sefton Brancker suggests figures for total costs which should be obtainable with improved aircraft at some future date. He hopes for a reduction from the present total figure of 5s. per ton mile to one of 1s. 10½d. —a total saving of 3s. 1½d. per ton mile. This, however, is less than the subsidy now being received.

Thus, if Imperial Airways were presented immediately with Sir Sefton's improved aircraft, and their subsidy were removed, they would lose more heavily than they now do. In other words no discernible prospect of commercial success can be foreseen for the future on the present line of operation. It may therefore be taken as established, that, either Imperial Airways is a hopelessly inefficient undertaking, or that air lines of the type officially supported by the Air Ministry are incapable of commercial success, either now or in any but a remote future.

Obviously both these alternatives may play a part in the present state of affairs, but it may be suggested that the latter is supported by very strong evidence indeed and is pretty certainly the main cause of all the trouble of air transport as it is at present comprehended by those set in authority over it. Wherever the truth may ultimately be found to lie, both the Director of Civil Aviation and Sir Sefton Brancker may be recommended to give these alternative explanations their serious attention.



THE AERIAL PULLMAN.—The cabin of the Vickers Vanguard (two Rolls-Royce Condors) ready for the party described below.

LUNCH IN THE AIR.

On Tuesday, Oct. 27, the Vanguard, adequately cleaned and its interior properly refurbished, was officially taken into the service of Imperial Airways. To mark the occasion a number of Press representatives were invited to Croydon in the joint names of Vickers Ltd., Rolls-Royce Ltd., and Imperial Airways, and some twenty thereof were taken up into the air and were there given the opportunity of partaking of a very excellent cold lunch.

There was a strong and extremely gusty wind blowing at the time, and even the Vanguard moved about very considerably. Not all the passengers faced the lunch in the air, but postponed it until they had reached firm ground—but the general consensus of opinion was to the extent that the Vanguard was extremely comfortable all things considered and that a cross-Channel trip in that machine was likely to be a lot less distressing than any steamboat crossing on such a day.

The machine has an excellent take-off and initial climb, and Major Brackley, who piloted on this occasion, confirms all previous accounts of her excellent controllability. He certainly brought off at a notably low speed a couple of the most perfect landings with full load on board in a wind that would have excused many things.

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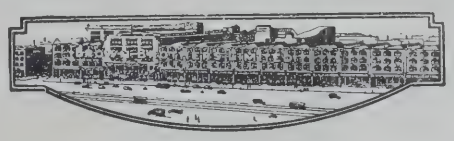
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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 10; Tuesday, 15; Wednesday, 16; Thursday, 12; Friday, 17; Saturday, 13; Sunday, 0.

IMPERIAL AIRWAYS LTD.:

London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 51, passengers 149, freight 18 tons.

AIR UNION:

Paris—London: Machines 12, passengers 37, freight 8 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 20, passengers 27, freight 4 tons.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES: Nil.

Total number of trips by British machines: 51, carrying 149 passengers. Foreign machines: 32, carrying 64 passengers.

Comparative Figures:

For week ending Nov. 1:
Machines, 83; Passengers, 213; Crews, 95; Total personnel, 308.

Corresponding week, 1924:
Machines, 82; Passengers, 346; Crews, 102; Total personnel, 448.

Corresponding week, 1923:
Machines, 64; Passengers, 142; Crews 95; Total personnel, 237.

Corresponding week, 1922:
Machines, 52; Passengers, 210; Crews, 78; Total personnel, 288.

Corresponding week, 1921:
Machines, 43; Passengers, 112; Crews, 59; Total personnel, 171.

Corresponding week, 1920:
Machines, 64; Passengers, 128; Crews, 85; Total personnel, 213.

Croydon Notes.

Winter is here and the services are suffering the usual troubles with weather. Weather reports are, however, much better than they used to be and with further improvements with wireless communication, and general adoption of the Auto-Giro principle, commercial flying should become something of a proposition.

Personally one has very little doubt that in the Auto-Giro principle aviation has found that salvation which the pneumatic tyre was to the bicycle and the automobile. [This is purely G. D.'s personal opinion.—ED.]

At one time the Handley Page slot was considered to have performed that function, but that was in 1920, and here we are in 1925 just as we were then. One imagines that a good deal more will have been heard of the Auto-Giro in 1930, especially as the Cierva is likely to be developed privately. It is always a good sign when an inventor has faith in his inventions.

Perhaps the Auto-Giro will prove the death-knell of Croydon aerodrome itself. Perhaps in 1930, instead of writing "Croydon Notes" one may be writing "Brancker-super-Victoria Notes," or "Vincent Square Notes" (by arrangement with Westminster School).

When the Auto-Giro era arrives there can be no further objection to using the Air Port of Westminster. Auto-Giros will be able to alight on floats on the Thames and get off again with little difficulty, and the fog question, which is one of the chief argument against the Thames as an air port, is already solved by the Auto-Giro.

Presumably the management of Imperial Airways Ltd. is watching the Auto-Giro question very closely, as to an air transport firm probably more than any other it is of immediate importance.

In last week's notes one stated that the "Vickers Virginia was being tested" prior to the air banquet described elsewhere. This should of course have read "Vanguard" not "Virginia," as the Vanguard is the commercial version of the Virginia bomber. One begs the Virginia's pardon and apologises for demobilising it. The Vanguard is really what Mr. Ashley Dukes, in that wonderful play "The Man with a Load of Mischief," describes as "a soldier out of love with wars."

Talking of the Vanguard, one notices that the anti-Vickers news circulater is still at work. In the daily press on Monday there were paragraphs stating that the "Rolls-Royce Vanguard" had carried 1½ tons of gold to Amsterdam on Saturday. These paragraphs remind one of the Northcliffe-Lloyd George feud, when the Northcliffe press were not allowed to mention Lloyd George by name but had to refer to him merely as "the Premier."—G. D.

The Air Mails.

The Postmaster-General announces that the despatch of letters for Russia and beyond by the London-Berlin-Königsberg-Moscow Air Mail Service (i.e., by the Route numbered 4B on page 2 of the current Air Mail Leaflet) will be suspended for the winter after the despatch of Oct. 30.

The London-Berlin Air Mail Service (Route 4A) will still offer, on days of regular flight, a saving of up to 24 hours in the transmission of letters for Russia and beyond posted by night Mail from the Provinces, or in London too late for the ordinary night Mail.

The London-Cape Town Flight.

On or about Tuesday next, Mr. Alan J. Cobham, accompanied by Mr. A. B. Elliot and a Gaumont film operator, will leave London on a D.H.50 to fly to Cape Town. The machine is the same one as that which he used to go to Burma and back, except that the 240 h.p. Puma engine has been replaced by a 385 h.p. Jaguar engine. The extra horse power is in order to make the take-off from the high altitude aerodromes in Central Africa easier.

The range of the machine will be about 550 miles, but the longest stretch, that from Cairo to Assuan, is only about 460 miles, so that a good margin of safety is allowed.

The first leg of the flight will be to Lyon. In Central Africa the stages will be reduced to about 200-250 miles, so that a lighter load of petrol will make the high-altitude take-off easier.

Mr. Cobham may make a quick-time flight to Cape Town if conditions are favourable, and make a slow flight home to make extensive cinema pictures. Or he may decide to take pictures on the way out, and, and, if he gets an offer, to sell the machine in South Africa and come back by boat.

In March of next year a Flight from No. 39 Bombing Squadron will attempt a flight from Cairo to the Cape and back. They will probably be mounted on Fairey III D.s with Napier engines. Mr. Cobham's picture records should be of considerable help to them and to Mr. Gladstone's proposed seaplane services in Central Africa.

THE LIGHT AEROPLANE CLUBS.

THE LONDON AEROPLANE CLUB.

During the week flying was only possible on three days and the total flying time was 16 hours and 25 minutes.

The following members were under instruction:—N. Jones, G. W. Quirk, G. H. Craig, R. V. Banks, Mrs. Eliott-Lynn, N. J. Hulbert, P. G. Lucas, W. E. P. Johnson, R. P. Cooper, Major Beaumont, R. Thomas, D. P. H. Esler, E. S. Brough, G. N. Warwick, J. S. M. Michie, J. Barros, J. A. R. Stevenson, W. Roche Kelly, E. K. Blyth, A. R. Ogston, E. D. Moss, R. J. Bevington.

P. G. Lucas, N. J. Hulbert, G. N. Warwick, and Mrs. Eliott-Lynn all flew alone during the week.

On Friday, Oct. 30, Mrs. Eliott-Lynn began the tests to qualify for her Aviator's Certificate. Having completed the figures of eight she went up for the height test. Shortly after starting it became misty and it was impossible to see the Aerodrome at a height of 1,000 feet. After making three landings to ascertain her whereabouts Mrs. Eliott-Lynn eventually came down at Slough, where the machine was housed for the night, and it was flown back to Stag Lane Aerodrome on the following day by Mr. Witcombe, the pilot instructor. During the flight Mrs. Eliott-Lynn reached 6,000 feet and proved herself thoroughly capable of handling the Moth by selecting suitable places for landing and getting off.

THE NEWCASTLE-UPON-TYNE AERO CLUB.

During the week ending Sunday, Nov. 1, the two Moths of the Newcastle-upon-Tyne Aero Club put up a total of 25 hrs. 27 mins. flying, I.X doing 19 hrs. 58 mins. and I.Y 5 hrs. 29 mins.

The following pupils flew with the Club's new instructor, Major Packman:—Messrs. A. E. George, P. Forsyth-Heppell (both ex-pilots), J. Bell, A. D. Bruce, R. N. Thompson, N. S. Todd, L. Smith, W. F. MacKay, W. Todd, R. M. Stobie, E. C. Kennedy, G. H. Twine, C. B. Marshall.

With reasonable weather three members should be going solo during the coming week, Messrs. Heppell, N. S. Todd and Stobie, all of whom have practised landing and taking off and are keen to be the first out. Mr. Stobie is new to aviation, but he has put in a lot of flying during the past month. He made his first four landings on Tuesday, Oct. 27, in stormy weather.

The following have flown as passengers with Mr. Baxter Ellis:—Capt. J. H. Boyd, R. N. Thompson, W. H. Leete, W. Walker, A. Bell, J. Vincent, G. Uliash, Dr. E. C. Dagger, Mrs. T. Bailes, C. B. Marshall, Councillor W. B. Ellis, J.P., A. Peacock, R. Robson, R. Todd, W. Stephenson and J. H. Johnson.

On Sunday, Nov. 1, when Major Packman was taking off for the last flight of the day, a tyre came off. Signals were made and Major Packman made a perfect landing, fully under the impression that he was without one wheel, as a wheel had to be used as a signal.

Major Packman is the only instructor and has put in a lot of time giving instruction. The only flying member of the Club, Mr. Baxter Ellis, devotes his time to giving passenger flights to non-flying members of the Club.

* * * *

The Committee has issued the following notice:—

Dear Sir,—The Committee regrets very much that Mr. G. F. E.

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rrison has been compelled to relinquish the post of Instructor h the Club. Major S. A. Packman has now taken up the duties Instructor.

'lying will take place each day from 10.0 a.m. until dusk. Bookings, to seven days in advance, may be made, as hitherto.

.ll Notices relating to the Aerodrome, Flying Rules, etc., will be ted in the hangar and members are requested to make themselves mainted with these notices from time to time.

'he Ceremony of Inaugurating the Club will take place on Satur-, Nov. 21, at 2.45 p.m. The Right Hon. The Lord Mayor of New-tle-upon-Tyne will open the Club's Aerodrome, after which visitors l members will have tea with Sir Arthur M. Sutherland, Bart., B.E., J.P., at the Aerodrome.

His Grace The Duke of Northumberland, K.G., C.B.E., M.V.O., l preside.

'inal arrangements will be announced at a later date.

(Signed) A. H. BELL (Secretary).

THE LANCASHIRE AERO CLUB.

)n Wednesday, Oct. 28, Mr. Scholes gave instruction at the aero-)me and the weather was perfect. He first made a test flight 10 min. after which H. S. Stern had dual for half an hour; Mr. rn is now on to landings and will shortly be going "solo." Crabtree then went for 35 min. "dual," and H. S. Stern again for min. Finally Mr. Lacayo made a solo flight of 17 min. The chine used was I.-V.

)n Saturday, Oct. 31, Mr. Cantrill opened with a test flight of min. and then took A. Hardy for a "Joy Ride" lasting about een min.

Saturday was the day for general members. That is the day when y member not having instruction may come down to the aero-)me and have a flight. As long as any ordinary member is waiting a flight those on the instruction list do not fly on *the last turday of the month.*

A. Wilkinson went up next with Mr. Cantrill for 20 min. "dual." stop was then made for lunch. About 2.15 Mr. Scholes made a ef test flight alone and then took D. F. Dyson for 30 min. al on I.-V. Four "Joy Rides" were then given. The passengers re H. Annable, J. Magnall, H. McNair, H. Alderley. Mr. Cantrill ve H. Goodyear 20 min. "dual," after which A. Goodfellow made a o flight of 10 min. The flying closed with the usual solo of 15 n. by Mr. Lacayo.

Mr. Magnall and Mr. McNair, both ordinary members, have been t on the instruction list and will start training at once. They te the place of two flying members who are now moved from the struction list to the solo flying list.

Members anxious to get on the training lists should attend at the rodrome in order to get ground instruction. No one commences ing until he has had a few hours' early instruction on the ground d has passed an examination conducted by the Chairman of the nstruction Committee, Mr. Prince. In this way they are saved ying for learning in the air what they could learn for nothing in e shed. And the Instructor's time is saved by only having people teach who know something of what they have to do.

On Sunday there was no flying; about fifteen members attended at e aerodrome and did a few small jobs on the machines.

THE ROYAL AERONAUTICAL SOCIETY.

On Thursday, Nov. 12, a paper on "Some Problems in eroplane Structural Design" will be read before the Society the Library, 7, Albemarle Street, by Mr. H. B. Howard, .F.R.Ae.S.

Mr. Howard has been for a long time connected with the r Ministry's "Airworthiness" department, dealing with e strength of aircraft, and the paper should be of great in-rest and value from quite a number of different view-points.

PERSONAL NOTICES.

DEATH.

NICHOLL.—On Oct. 29, at 3, Ashworth Road, London, W.9, Lulu vans, aged 46, late of the D'Oyly Carte Opera Co., daughter of the te John Evans, and wife of Wing Cdr. H. R. Nicholl, R.A.F. lodesian papers, please copy.

MARRIAGES.

HARRISON—HUTCHINS.—On Oct. 26, at All Saints, Branksome Park, Flt. Lt. G. H. Harrison, D.F.C., R.A.F., to Ethel, second daughter of the late Alfred Hutchins and Mrs. Hutchins, Pasadena, Branksome Park, Bournemouth.

MACBRYAN—HARDSTAFF.—On Oct. 29, Capt. Reginald Rutherford MacBryan, second son of Dr. H. C. MacBryan, Kingsdown House, Box, Wiltshire, to Gladys Mary, widow of Flt. Lt. Leslie Hewitt Hardstaff.

WOLLEY DOD—GRIPPER.—On Oct. 28, at St. Mary Abbot's, Kensington, Charles F. Wolley Dod, younger son of the late Francis Wolley Dod and Mrs. Wolley Dod, of Edge Hall, Malpas, Cheshire, to Janet Evelyn, second daughter of Dr. and Mrs. Walter Gripper, Wallington, Surrey.

FORTHCOMING MARRIAGE.

CORYTON—HANBURY.—The marriage arranged between Sq. Ldr. William Alec Coryton, M.V.O., D.F.C., R.A.F., youngest son of the late Mr. William Coryton, D.L., J.P., of Pentillie Castle, East Cornwall, and of Mrs. Coryton, of Fursedown, Plympton, and Philippa Dorothea, elder daughter of Mr. and Mrs. Daniel Hanbury, of Castle Malwood, Lyndhurst, Hampshire, and Alassio, Italy, will take place on Dec. 19, at Minstead.

BIRTH.

DRUMMOND.—On Oct. 28, in Grantham, to the wife of E. Morton Drummond, The Black Watch and R.A.F., Hough-on-the-Hill, near Grantham—a son.

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THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXIX. No. 20. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"..... THREE IN EGYPT CANNOT MAKE BETTER NOTE"—(*Antony and Cleopatra.*)



THE FLIGHT OUT OF EGYPT.—The three D.H.9as of 47 Bombing Squadron lined up at Helwan aerodrome, Cairo, before the start of the successful flight across Northern Africa to Kano. The fourth machine acted as escort at the start as far as Khartoum. Liberty engines were used because more modern equipment suitable for the flight have not yet been issued to the R.A.F. in Egypt.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

NOV. 11, 1925.

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Incorporating

Aeronautical Engineering

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ON THE REWARD OF VIRTUE.

There are few proverbs truer than that which tells us that virtue is its own reward. And the phrase "Virtue rewarded" always carries with it the implied meaning that the fact that virtue should be rewarded by anything other than itself is rather unusual. There always seems to be an element of surprise that virtue should be rewarded by anything except self-satisfaction. And as self-satisfaction is one of the more important minor sins, though hardly a deadly sin, it seems that virtue is entitled, on purely moral grounds, to some tangible reward so that it may be saved from having to exist solely on self-satisfaction.

For quite a number of years, in fact ever since an attempt was made soon after the War to revive air racing and to resuscitate the pre-war glories of the great air race meetings at Hendon, as they were in the spacious days of the late Richard T. Gates and his able aide Mr. Bernard Isaac, the Gloucestershire Aircraft Company Ltd. has taken upon itself to be the chief upholder of the honour of Great Britain in aerial speed contests.

Various other firms may take unto themselves the credit of having supported air racing to a greater or less extent. In those very early days after the War the Sopwith Company, Martinsydes and the Avro people built special machines to fly in the Aerial Derby. And in addition the Fairey Company and the Supermarine Company and the Avro Company built seaplanes for the Schneider Trophy contest at Bournemouth in 1919. And the Supermarine people won the Schneider Trophy at Naples in 1922, competing again at Cowes in 1923. The Blackburn firm also built a seaplane racer for the 1923 competition. Also Mr. Fred Raynham took his own private Martinsyde to France for the Gordon Bennett Race in 1920. All these have shown that they possess the virtue of patriotism and sportsmanship.

The Speed Firm.

But none will question the Gloucestershire Company's right to be considered the leading British firm in the construction of racing aeroplanes specially built as such. From the very first appearance of the first Gloucester racer, nicknamed the Bamel, which won the Aerial Derby in 1921, 1922, and 1923, through her modifications and transmogrifications as the Gloster I in subsequent years, down to the Gloster II, which was unfortunately wrecked at Felixstowe last year, and to the Gloster III, which was our sole representative to finish the Schneider contest this year, the Gloucestershire Aircraft Company Ltd. has always been in possession of our leading speed machines,—at any rate until the Supermarine monoplane annexed the World's Seaplane Record recently. And now that the Supermarine is no more the Gloster III remains the fastest British aeroplane, whether on wheels or floats.

One hates even to think about the amount of money which the Gloucester Company must have spent in building and running their racing machines in the past five years. They must have spent very many tens of thousands of pounds on the game, even if they have not actually run to six figures. And their crowning virtue is that they embarked on the construction of racing machines and have stuck to building racing machines with true English obstinacy because the two men who direct the firm's destiny, Mr. A. W. Martyn and Mr. David Longden, believed that it was their duty, and still believe that it is their duty, to uphold British prestige in the World's great air races.

Also there is considerable satisfaction in placing on record once more the fact that the Napier Company has contributed largely to the success of the various Gloster racers. The Napier people have gone to any amount of trouble and expense in preparing special racing engines, making modifications, boosting the power, and in generally helping to uphold our name in the Sport of Flying.

It is true that one or two of these racing machines have been bought by the Air Ministry and that the pair of Gloster IIIs which went to America for the Schneider Trophy contest this year was an actual Air Ministry order. But the price received from the Air Ministry for the machines cannot have begun to pay the cost of designing and redesigning and building and rebuilding and testing the various Gloster racers, even without considering the cost of sending the machines to compete in Aerial Derbies and Deutsch Cup and Schneider Trophy contests.

Thus up to the present these firms' virtue has been its own chief reward. But as everything comes to him who waits one has a good deal of pleasure in recording the fact that the same virtue looks like being rewarded in a more tangible form in the future.

One saw considerable evidence in that direction when one had the pleasure of paying a visit recently to the Gloucestershire Aircraft Company's works at Cheltenham.



ROYAL INTEREST.—H.M. the King inspecting the Gamecock (Bristol Jupiter) which is the latest radial-engined Gloster product. The photograph was taken at the last R.A.F. Pageant.

When a firm has gone on year after year proving conclusively that it can build really fast aeroplanes, and when the British Government recognises that the Royal Air Force is its First Line of Defence, it follows naturally that in due course the firm which builds the fastest aeroplanes must receive orders for fast fighting machines for defensive purposes. And so it came to pass that the experimental Gloucester Grebes with their radial Jupiter or Jaguar engines, having proved themselves to be about our fastest single-seat fighters, were adopted recently as the standard type for the equipment of several of our fighting squadrons.

Post-Bellum Struggles.

During the years in which the Grebe was being developed the Gloucestershire Company existed chiefly on orders for reconditioning wartime aeroplanes, chiefly D.H.9as, for the R.A.F. One writes, of course, without knowledge of the firm's financial affairs, but one scarcely imagines that the profits on those contracts for reconditioned machines can have paid for the experiments through which the Grebe was developed

After the Armistice in 1918 the Gloucestershire Company reorganised their works and blossomed forth with a machine of their own in 1921. This was the original Bamel, which was designed by Mr. H. P. Folland as consulting engineer to the firm before he actually joined their staff definitely. The machine was designed in May 1921 and won the Aerial Derby in July, only six weeks later. Which shows what an energetic firm can do when it tries.

Mr. Folland joined the firm as a member of the permanent staff, as Chief Engineer, in August of that year.

The firm's next activity was the building of about forty Sparrowhawks for the Japanese Navy. These were single-seat fighters with B.R.2 rotary engines and were more or less a development from the Nieuport Nighthawk.

Shortly afterwards the firm acquired the designs and rights of the Nieuport Company and produced a number of Nighthawks with Bristol Jupiter engines for the R.A.F. These were known officially as Mars VI.

The Mars Series.

In the Mars Series, Mars I was the "Bamel," Mars II was the Sparrowhawk, Mars III was a variant of the Sparrowhawk, one believes as a two-seater. Mars. IV was the Sparrowhawk fitted with hydrovanes and emergency flotation gear as a deck-flying ship-board fighter. Mars V was another Sparrowhawk variation.

Mars VI was the Nighthawk but fitted with a Jupiter or Jaguar engine. Mars VII was, one believes, a naval variant of Mars VI.

Mars VIII was a design for a commercial machine with a Rolls-Royce Eagle engine and a folding fuselage. This, however, was never developed. Mars IX was to have been the same machine with a Napier Lion engine.

Mars X was similar to Mars VI but arranged for ship-board use with a B.R.2 engine. That was the end of the Mars Series.

Concurrently with these the Gloster Series of racing machines was produced, as already described.

The Grebe and Its Progeny.

Apart from the racing machines the first to succeed the Mars series was the Grebe, the first of which was produced in April 1923. One of them took part in the King's Cup Race that year and did the fastest time from Glasgow to Manchester. The Grebes are now fitted, as already mentioned, with Jaguar engines.

Almost concurrently with the Grebe, ranking with but after it, came the Grouse. This is a very similar machine but fitted with a B.R.2 engine of 230 h.p. and is intended to be used for training service and for foreign sales, where the nations concerned did not want to pay for the additional power of Bristol Jupiters and other radials.

As already mentioned, the Grebe has now become the standard high-speed single-seat fighter of the R.A.F.

The successor to the Grebe is the Gamecock. The first example of this to appear in public was seen at the R.A.F. Pageant this year, when it created a very favourable impression both by its workmanship when inspected closely on the ground and by its performance when seen in the air. Thus far it is the most recent of the Gloucester Company's products which may be described in print.

Of course everybody knows that the firm is building the Gorcock, and that it is a development from the Bamel with a Napier Lion engine and that it has a very high performance. Also excellent photographs of it have been shown by an air attaché of a foreign Power, but, as Mr. Kipling says in the *Just-So Stories*, "I am not allowed to paint it."

If any reader of The Aeroplane wants to see what the Gorcock is like they had better apply at any of the foreign embassies or legations in London. All one can say is that it is fully worthy of the Gloucester Company's best traditions.

A Light Aeroplane.

The Gloucester Company have made one light aeroplane the Gannet, which appeared at the Lympne Meeting of 1923, with a purely experimental engine which failed to live up to expectations. This machine has since been fitted with a Blackburne engine and with it flew quite well. But the firm were so busy with their Schneider Trophy machines in 1924 and 1925 that they did not go to the trouble and expense of tuning it up for the later light aeroplane competitions.

But just by way of showing that they had not lost interest in light aeroplanes the Directors of the Gloucester Company gave £100 to the Royal Aero Club's Racing Fund in lieu of the presence of their own machine. Which strikes one as being a remarkably sporting effort.

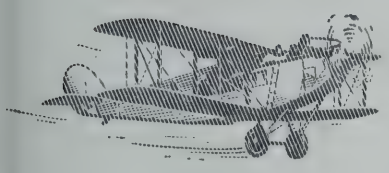
At the Cheltenham Works.

When one visited the Gloucester Works at Cheltenham recently one was glad to see that every department was full of work, from the drawing office to the erecting shop. The first thing that struck one on entering the gates was that one's old friends the two imposing stone soldiers which formerly guarded the entrance, and were the first things



THE GLOSTER HOME.—Brockworth aerodrome near Cheltenham, which is the private aerodrome of the Gloucestershire Aircraft Co. Ltd. It will be seen that so far as accommodation at the aerodrome is concerned the firm is well prepared for the day of mass production.

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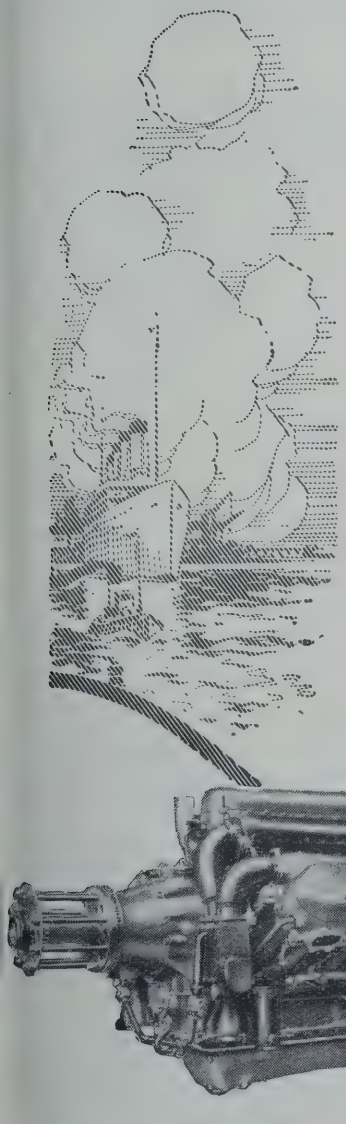


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The last three Aerial Derbys have been won by Napier-engined Gloster machines. In 1923 the average speed over a circular course of 200 miles was 192.4 m.p.h.



A GOOD FIGHTER.—The Gloster Grebe, which is the standard equipment for a number of R.A.F. Squadrons. Recently a Grebe was dived at a speed of 240 m.p.h. and pulled quickly out without any trouble being experienced. The machine illustrated has a Bristol Jupiter engine.

which met the eye of a visitor, had been removed. In fact so far as one could see all trace of the work of the Martin Company (about the most famous makers of monuments in this country), from which the Gloucester Company originated, has vanished and the whole of the premises seems now to be devoted to aircraft work.

This at any rate is a good sign from the aircraft point of view. And from the national point of view it is better that the main energies of the chiefs of the firm should be devoted to such work of national importance as the equipment of our First Line of Defence than that they should be expended in raising monuments to the fallen.

During one's visit one was so busy that one had no time to inquire where the work of the Martin Company is being done. Presumably it has been removed elsewhere and has not been altogether abandoned, for the firm's monumental work is so good that its loss would be a blow to the sculptural art of Great Britain.

In the drawing office one found a staff of obviously capable men at work under the direction of Mr. Preston, who is largely responsible for the all-round excellence of Gloucester designs. As may be imagined, in the case of a firm like the Gloucester Company which has produced such a large number of designs, the drawing office staff is large. And, with that care for their employees which is a hobby of the directors of the firm the drawing office is delightfully light and airy, and has quite a pleasing view which is restful to eyes tired by plain black and white.

One may not of course disclose any of the new designs on which the staff is working but there appears to be quite a good deal which would interest the Secrecy Department of the Air Ministry.

From the drawing office Mr. Longden took one through the works. The woodworking shop, is quite one of the best one has ever seen, either in England or America. Both the woodworking shop and the machine shop seemed quite busy. This is always a healthy sign because when a firm runs short of orders the first shops to shut down are naturally those which deal with the raw material.

One class of product on which the Gloucester Company particularly prides itself is its sheet-metal work, commonly known in the Aircraft Trade, at any rate in the old days, as "tin-bashing." So expert are the Gloucester Company's tin-bashers that they are actually doing some particularly intricate sheet metal work for certain of the leading motor-car firms in this country. One may not mention names of course but if one dared to do so they would be the finest testimonial possible to the excellence of the Gloucester workmanship.

The erecting shop was quite busy on assembling Grebes, and one was glad to hear that it looked like being busy for some little time to come.

There was the usual hush-hush shop which strangers are forbidden to enter on pain of prosecution for High Treason, or something of that sort, for penetrating Air Ministry secrets. Of course all the foreign attachés know pretty well what is inside, and anybody who chooses to pay a visit to that pleasing health resort, Cheltenham, and thence makes a trip to the picturesque aerodrome at Brockworth can no doubt see the machines flying. But, of course, one may not



THE GROUSE II.—A product of the Gloucestershire Aircraft Co. which is fitted with a Lynx engine.



A Silhouette of the FAIREY "FOX" AEROPLANE.

The "Fox," which is being supplied in quantities to the Royal Air Force, stands at the forefront of aerial equipment to-day.

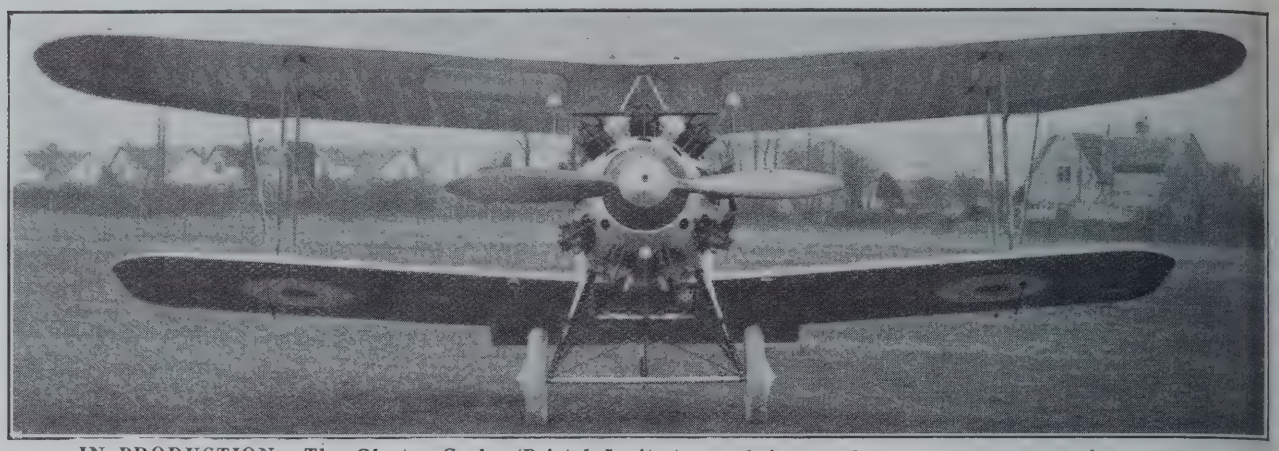
Its performance far surpasses that of any other aeroplane of its class throughout the world.

It is interesting to note that the Fairey "Fox" is fitted with the Fairey "Felix" D.12 Engine and with a Fairey-Reed Air-screw, both of which contribute largely towards the remarkable speed and efficiency obtained with this machine.

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IN PRODUCTION.—The Gloster Grebe (Bristol Jupiter) now being produced for the R.A.F. in quantity.

make any mention of them in these pages—at any rate till they have been illustrated in the foreign papers.

THE BROCKWORTH AERODROME.

From the Works Mr. Longden took one to the aerodrome at Brockworth, which is not only one of the most prettily situated aerodromes in England but is also one of the best aerodromes as such. Although it is almost overhung on the North and East side by the lower spurs of the Cotswold Hills (one gets almost a plan view of the aerodrome from a road up one of the hills) it is usable in any direction of the wind. From the South-East round to the West and North-West, whence come the prevailing winds, it is surrounded by the flat open country of the Severn Valley where there are plenty of large flat fields for emergency landings. Consequently it is not only a good aerodrome for testing new machines in the hands of experienced pilots but it would also make quite a useful aerodrome for training reserve pilots and so forth

The Gloucestershire Company took over Brockworth from the Air Ministry some years ago and have been using it to test their experimental machines and also to put their production types through their reception tests, so there has been plenty of work there since the Grebes have been coming through in quantities. The buildings, as may be seen from the accompanying photograph, were built on the usual lavish wartime scale by the Works and Buildings Department of the Air Ministry who apparently, as in all such cases, set to work with the idea that the War was going on for ever.

Consequently the buildings are so huge, and there are s many of them, that one doubts whether they can ever be ful occupied in time of peace, no matter how great may be th boom in aviation which will come upon us unawares son day. But one does hope to see a number of those vast she occupied in the near future by Gloucester aeroplanes i process of passing their reception tests.

And no doubt when co-operative flying, such as is no being started by the various light aeroplane clubs all ov the country, develops as it should do in the natural cours of events Brockworth will become a regular resort of week end visitors from other parts of the country.

There are very few trips by air from the more or les gloomy industrial centres, such as Manchester and Birmin ham, which would be more pleasant than that to Cheltenha And there is certainly no place where aerial visitors will b made more welcome or where their machines will be bett housed than at Brockworth.

Taking it all round everything points to the Gloucest Company reaping its reward for the virtue its directors ha shown in the enterprise and pertinacity with which they ha stuck to their progressive policy, and for the patriotism an sportsmanship which they have shown in building and flyin speed machines in the great international competitions.

C. G. C

THE AIR MINISTER'S POLICY.

Speaking at the Guildhall Banquet on Nov. 9, in response to the toast of the Services, Sir Samuel Hoare said :—

I am grateful to Mr. Sheriff Batho for including the Royal Air Force in this toast, for not only has the City of London been given the opportunity of showing its confidence in the smallest and youngest of the fighting services, but I have the chance of reporting progress upon a field of restless activity that is constantly changing.

During the past twelve months our air defences have been substantially strengthened. Strengthened not only in quantity and equipment but strengthened also by the inclusion of a Territorial element. The London Auxiliary Air Force Squadrons are already in being and I am most grateful to the Territorial Associations of the City and County of London for the great help that they have given me in starting this new breed of Sky Terriers.

As to the Air Force abroad, the Colonial Secretary and I had the opportunity this Spring during a flight of 3,500 miles of inspecting the chief scene of its overseas activities in the Middle East. We came back, for I know that I can speak for him just as much as for myself, with the conviction that the Air Command is carrying out its difficult duties with the greatest efficiency and economy.

But it is not for me to boast of the achievements of the Royal Air Force. It is for you, rather, to judge the Force by the results that it produces. Here in London you have during the last year had two chances of testing its worth. If you wished to know something of the keenness of the recruits and the methods of their elementary training, what better opportunity could you have had than at the Wembley Tattoo? If again you desired to note the progress that is being made in the real work of the Force, military flying and air defence, what better evidence could you have obtained than at the Air Force Display at Hendon?

Year by year the standard of the personnel is being raised. Year by year you will also have noticed the standard of our equipment is being improved. We are certainly anxious to make the fullest possible use of new inventions and discoveries. One of these inventions, called by the scientist the Auto-Giro, called by the public the Windmill Plane, seems to us to offer an opportunity for most valuable developments. If a machine can be made to land almost vertically, flying may be brought within the reach of thousands for whom it would otherwise have been impossible. If stalling, the most constant source of air accidents can be eliminated, the risk of flying will be reduced to an amazing extent. It is too early to say whether the windmill plane will help us to solve these problems. It is not, however, too early to say that the invention is sufficiently remarkable to be worthy of further and fuller trial. I have accordingly decided to have four or five of these machines of different types built without delay in England for the purpose of trying out Sen Cierva's remarkable invention.

I am also giving renewed attention to the very important que tion of high speed British machines. I do not suggest that speed everything. I do not suggest that taking into account our requir ments as a whole the general standard of British squadrons in th matter of speed compares badly with that of other countries. Durin the last few years we have had to spend our money upon urgent nece sities, we have had little left for record breaking. I can, howeve say that we have learnt such valuable lessons from the high spe seaplanes that we have recently constructed and loaned to the make for entry in the Schneider Cup Race, that I am now considering th placing of orders for one or more machines of still higher perfor ance next year.

We were all sorry that we had such bad luck in the race, but w shall not on that account give up trying and I intend at once to tak up the question of next year's entry with the British constructors. hope that the British Industry will see its way to enter on its own r sources. From all points of view it is better that private enterpri should take the field in these events. If, however, there is no oth way of securing a British entry for next year's race, I shall be pr pared to consider again the loan of Air Ministry machines und the same conditions as this year.

But the great air race is not the contest over any internation trophy, it is the race between the powers of peace and the powe of war for the control of the air. Hitherto the discovery of flyin the greatest discovery of the twentieth century, has done little mo than open the air to the most terrible forms of modern warfare. the air to be left as a battle ground for all the most destructive i ventions of speed and power and gas? Are the powers of war to ho dominion in a sphere that was surely intended for the pursuits peace? Is the discovery, to which generation after generation ha devoted its untiring efforts, to prove a Frankenstein monster that wi destroy civilisation?

These are the questions that are constantly in the mind of anyo who is occupied with air defence and the future possibilities of a warfare. These are the questions that urge me to develop so fa as I can the peaceful uses of the air, whether it be by the encourag ment of Empire air routes or whether it be by the creation of flyin clubs in our great cities. These are the questions that make m hope that from the agreement of Locarno will spread over Euro new atmospheric conditions in which the clouds of war will be drive from the air and a clearer and serener sky make it possible for flyin to become the blessing that it was intended and not the curse which strife and suspicion, fear and hatred may pervert it.

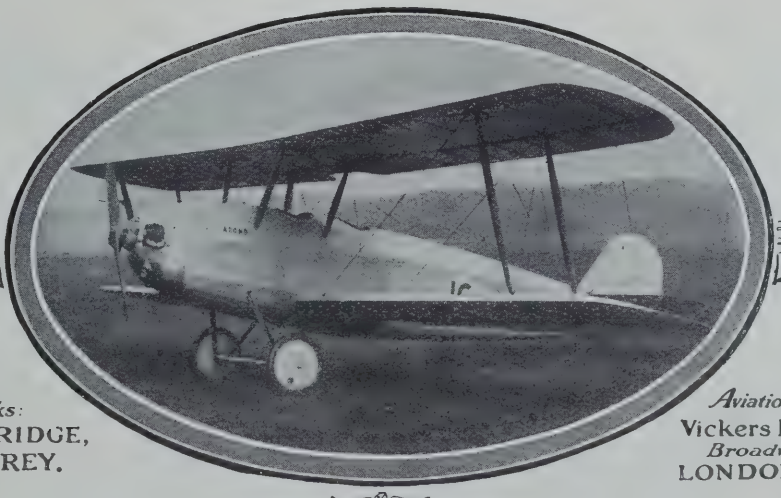
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THE WORLD'S LONGEST FLIGHT.

On Nov. 7 Colonel the Marchese di Pinedo and his engineer, Sergeant Campanelli, alighted on the Tiber at Rome on the Savoia 16 ter flying boat (450 h.p. Lorraine-Dietrich engine) after having flown from Rome to Melbourne, thence to Tokyo and back to Rome, a total distance of approximately 35,000 miles.

His progress from his departure from Sesto Calende, on Apr. 21, has been followed in THE AEROPLANE, but owing to the historical interest of his performance and in order to emphasise the greatness of his accomplishment it seems well to trace broadly his itinerary throughout the whole flight.

He left Sesto Calende, the birthplace of his Savoia flying boat, on April 21, and flying via Brindisi, Leros, Alexandretta and across the Taurus Mountains to Baghdad, Bushire, Bundar Abbas and Charbar, reached Karachi on May 4.

From Karachi he flew down the west coast of India to Bombay and thence across the Indian peninsula to Coconada and up the West Coast to Calcutta, arriving on May 12.

From Calcutta he proceeded via Akyab, Rangoon, Tavoy, Mergin, Puket, Penang, Singapore, Batavia, Sourabaya, Burra, and Kupang, to Broome in Western Australia, arriving at the latter place on May 31. Leaving Broome on June 1 he flew via Port Hedland, Carnarvon, Perth, Banbury, Port Albany, Israelite Bay, Port Eyre, and Adelaide, arriving at Melbourne on June 8.

The first stage of his flight, Sesto Calende—Melbourne, a distance of 14,900 miles, was covered in 145 flying hours.

He remained in Melbourne sufficiently long to enable his mechanic to give the machine and engine a thorough overhaul.

On July 16 he flew from Melbourne to Sydney and was present there to assist in the aerial welcome to the American Pacific Fleet which visited Australian waters last Summer.

On Aug. 6 he left Sydney and flew via Brisbane, Rockhampton, Townsville, Innisfail, and Cooktown, arriving at Thursday Island on Aug. 13.

On Aug. 14 he proceeded via Meraouke, Dobo, Amboina, Merrado, Zamboanga, Cebu, and Tayabas, arriving at Manila on Aug. 17, where the machine was overhauled for the second time at the U.S. Naval Air Station.

On Sept. 16 he left Manila and flew via Aparri, Tamsui, Shanghai, Mokpo, Yamakawa, Kagoshima, arriving at Tokyo on Sept. 26.

He remained in Tokyo for three weeks, during which time a new engine was installed and the machine was given a third overhaul.

This second stage, of approximately 8,023 miles, was covered under very unfavourable weather conditions, and was over a route that had never been covered by aircraft before.

On Oct. 17 he left Tokyo and proceeded via Kagoshima, Shanghai, Hong Kong, Haiphong, Saigon, Bangkok, Rangoon and Akyab, arriving at Calcutta on Oct. 28.

He left Calcutta next day and flying up the Ganges to Benares, and then down the Indus to Karachi, he succeeded in flying across India in two days.

Leaving Karachi on Nov. 1 he flew via Bundar Abbas, Bushire, Baghdad, Alexandretta, Leros, Taranto, and Naples to Rome, arriving at the latter place on Nov. 7.

The first two stages are remarkable in themselves, but the third stage, from Tokyo to Rome or at any rate to Taranto, the first point where he alighted on Italian territorial waters, is still more remarkable.

The total distance, of 10,400 miles, was covered in 19 days and he flew from Bangkok to Taranto, 6,400 miles, in ten consecutive days.

The total distance of the round flight from Rome and back to Rome is about 35,000 miles, or some 7,500 miles further than the distance flown by the U.S. Army Round-the-World Expedition.

When one realises that this was accomplished by one pilot and one mechanic on one flying boat and with but two engines (it is believed that the first engine was only replaced by a new engine at Tokyo as a precaution, and was not at all necessary) and that the complete circuit was flown over without anything more than the usual incidents that one might expect from a flight of this nature, the performance is undoubtedly the finest yet accomplished in the history of aviation.

The Savoia Co. have been faithful to the flying boat, and this flight, accomplished on one of their perfectly standard service types, has justified their faith. The engine, a standard "W" type 450 h.p. Lorraine-Dietrich, has added emphatically to its laurels.

The arrival of Col. di Pinedo and Sergt. Campanelli in Rome was triumphal, and a number of ceremonies have been prepared in honour of the Marchese and his mechanic.

"For exceptional merit" the Marchese di Pinedo has been promoted to the substantive rank of Colonel, and a high military distinction has been bestowed on him by H.M. the King of Italy.

His performance will provoke world-wide admiration from all who have aviation at heart, and on behalf of British Aviation THE AEROPLANE congratulates our Italian Allies on the success of their heroic compatriot.—L. B.

MEANS TO AN END.

Colonel the Marchese di Pinedo used Wakefield Castrol Motor Oil throughout to lubricate his Lorraine-Deitrich engine.

Colonel di Pinedo cabled from Melbourne :—

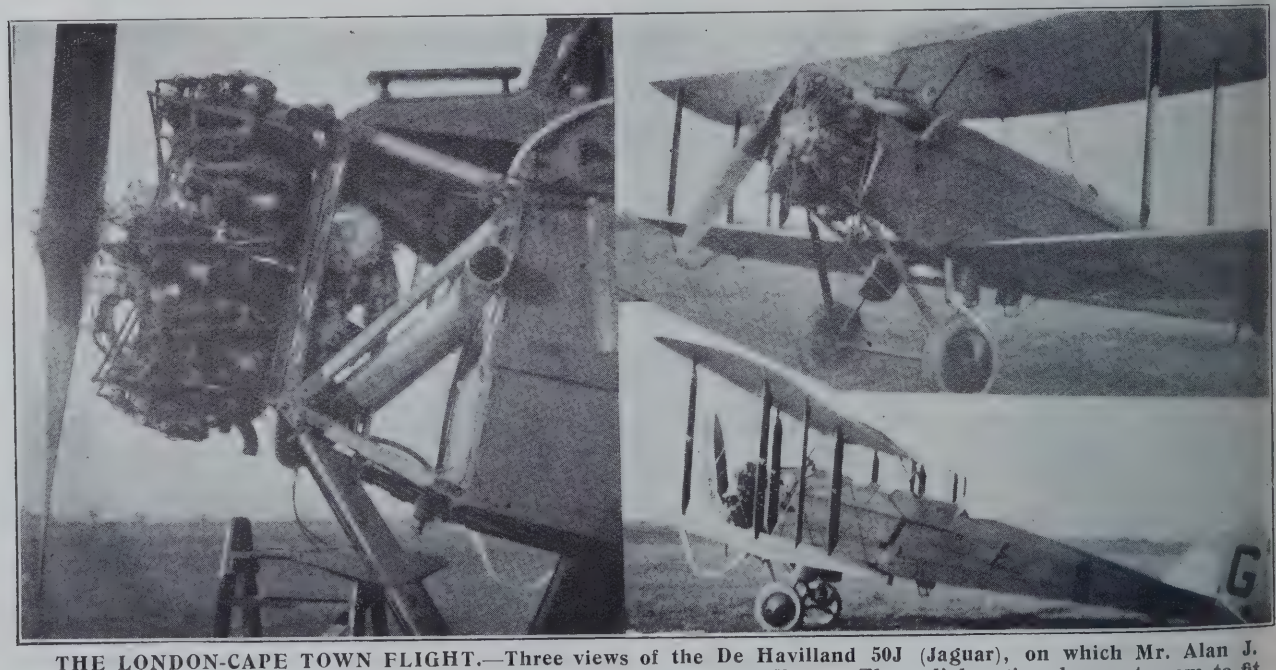
"Motor excellent condition; Wakefield Castrol giving every satisfaction."

And again from Sydney :—

"Castrol lubrication and supplies perfect, engine more efficient than beginning of flight after 167 hours."

As with every other flight of note "Shell" spirit was used and this gave every satisfaction.

Similarly Titanine T.2S dope and aluminium nitro-varnish was used on the Savoia and this finish contributed to the successful conclusion of the 35,000-mile journey.



THE LONDON-CAPE TOWN FLIGHT.—Three views of the De Havilland 50J (Jaguar), on which Mr. Alan J. Cobham and Mr. A. B. Elliott will start on Monday to fly to Cape Town. The radial engine does not seem to fit in with the general design of the machine, and consequently does not add to the beauty of the D.H.50, which in its original form with a Puma is one of the best proportioned machines ever seen.

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IN this competition readers were asked to vote as to the merits of six famous flights of recent years. The novel form of the contest aroused great interest, and several hundreds of entries were received from all over the country. The result of the voting places the six flights in the following order of merit:—

1. The Trans-Atlantic Flight by Alcock & Brown. (ROLLS-ROYCE engines.)
2. Cobham's 17,000 miles Flight to India and back. ('Puma' engines.)
3. The Ross-Smith 11,294 miles Flight to Australia. (ROLLS-ROYCE engines.)
4. The American Round the World Flight. (American 'Liberty' engines.)
5. The Airship R34's Voyage to America and back. (Sunbeam airship engines.)
6. Cmdr. Goble's 9,000 miles Flight round Australia. (ROLLS-ROYCE engines.)

It will be noted that three of these famous flights were made with ROLLS-ROYCE aero engines, and that all six flights were made by WATER-COOLED aero engines.

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WHAT LANCASHIRE DOES.

On Thursday Nov. 5 Sir Samuel Hoare, Secretary of State for Air, paid a visit to the Lancashire Aero Club and to the Works of A. V. Roe and Company Ltd., prior to letting off some political fireworks at Clitheroe the same evening. Those who may feel at all disposed to regard a Secretary of State as being one of the idle rich would have had a nice object lesson if they had followed Sir Samuel Hoare through that day's work. The way in which he contrives to get through such a day, not only remaining bright and cheerful but actually energising other people as he does, shows him to be a man of extraordinary physical as well as mental powers, and demonstrates how fortunate British Aviation is in having him as its political chief. The Lancashire Club owes largely to that energising quality of Sir Samuel's the gift of three-and-some-more aeroplanes which were promised as related hereinafter.

Leaving London at 08.30 hours Sir Samuel, accompanied by Sir Sefton Brancker, Director of Civil Aviation, and by Sir Charles Cheers Wakefield of Castrol fame, lately Lord Mayor of London and now President of the Lancashire Aero Club, arrived at Stockport at approximately 12.30 hours. There the visitors were met by Mr. John Leeming, the Chairman of the Lancashire Aero Club and Sir William Letts, Chairman of the Directors of the Crossley-Avro combine, and Mr. Henry Fildes, Chairman of the Avro Company as such, and by the Committee of the Lancashire Aero Club.

Thence the visitors were brought in a convoy of cars to to the Avro Aerodrome at Woodford, which has been placed by the firm at the disposal of the Lancashire Club. At the aerodrome they were met by Mr. John Lord, Director of the Avro Company, thanks to whose hospitality the previous night one was saved the early morning journey from London, and by Colonel Shelmerdine of the Aerodromes and Licensing Branch of the Air Ministry, who had likewise been rescued by Mr. Lord from the rigours of the early morning.

At the aerodrome the official party inspected the two de Havilland Moths recently acquired by the Club and saw one of them make a flight with a passenger. Incidentally one may remark that the machine got off with notable ease up hill against quite a gusty wind.

While at the aerodrome one was able to inspect the L-P-W glider which the members of the Club use for practising taxying about the ground, or as what in the earlier days used to be called a Penguin. It is a quaint little monoplane built some years ago by Mr. Leeming as a glider, and in that form it made sundry essays in the air towed as a kite behind a motor-car, a most dangerous form of aviation. It has now been fitted with a Douglas engine kindly presented to the Club in the goodness of his heart by Mr. George Parnall of Bristol.

Mr. Goodfellow, late of No. 8 and No. 47 Squadrons, R.F.C., now a solicitor in Manchester but as keen as ever on flying, told one at the lunch later that he had a bet that he would coax the L-P-W off the ground, at any rate for a straight flight, but he admitted that the chief function of the ailerons at present is to push the machine up into a vertical position when a pupil scrapes a wing-tip on the ground.

From the aerodrome the convoy of cars complete with visitors made for the Midland Hotel in Manchester, which apparently remains as it was when one knew it some twenty years ago a bright spot in the smoke-laden atmosphere of the city, and about the best hotel outside London. Here we were all handsomely entertained by the Club.

The Speeches.

After lunch Sir Charles Wakefield, a Lancashire man by birth though a Londoner by adoption, speaking as President of the Club, proposed the health of the Secretary of State for Air in his usual felicitous way, pointing out how much Sir Samuel had done and is doing for aviation. He also reiterated emphatically his faith in the future of aviation and his belief in flying as the first defence of the Empire.

Sir Samuel Hoare began by saying that as Sir Charles had said so many nice things about him he proposed to get all square with him on this round, so he reminded us how much Sir Charles had done for the air and reminded the Lancashire Aero Club haw fortunate they were in having Sir Charles as their President. Continuing, Sir Samuel said that when he was formerly Secretary of State for Air he wanted to encourage light aeroplanes and he was now glad to see them start under such favourable circumstances.

Substantial progress was being made. The London Club had already 150 members and a waiting list of one hundred more. The Lancashire Club had 150 members of whom 140 were flying members. Twenty-seven of them were already flying and more would be flying if they had more machines. (Loud cheers from the members.)

He pointed out that the cost of flying was no more than that of running a car for a similar time. The Club had the great advantage in starting at Woodford, the property of A. V. Roe and Company Ltd., who had made more training machines than any firm in the World. He expressed his pleasure at seeing Sir William Letts present. The Club were lucky in having enthusiastic officials and in having Messrs. Cantrill and Scholes, experienced pilots, acting as instructors free of charge.

He himself quite realised the difficulties, such as lack of machines, and hoped the Club would make a success of itself. He wanted to see all the light aeroplane clubs self-supporting and free from Government control and he appealed to Lancashire to make this Club self-supporting. He hoped patriotic Manchester citizens would come forward and help.

The Clubs, he said, had something more important to do than giving enthusiasts joy-rides in the clouds. If there was nothing more in flying than that, *The Daily Mail* would not have given £5,000 as prize money for the competition next year, which would be the greatest light aeroplane competition ever held, and the Air Ministry would not interest itself in the progress of flying such as the formation of these clubs, and in the "Windmill 'plane" of which they had heard so much.

The Air Ministry's idea was to get more people interested in flying. Hitherto flying had chiefly interested the experts of the flying services of all nations. But the clubs would help in this time of financial stringency in strengthening our air defences, irrespective of parties, and in strengthening the air communications of the Empire.

Mr. John Leeming, the Chairman of the Club, proposing the health of Sir Sefton Brancker, expressed the Club's gratification in having him at their gathering. The Clubs were always able to go to Sir Sefton with their troubles. He was an absolute stranger to, almost an enemy of, red tape, and he knew the problems of the Clubs better than they did themselves.

Recently there had been a meeting of the various clubs in Birmingham and the chief result of it had been a present of three aeroplanes to the Birmingham Club. He wanted to get a whole squadron of light aeroplanes for the Lancashire Club and hoped that when next Sir Sefton came to Manchester he would come by air and that the Club machines would meet him in formation.

Sir Sefton Brancker, replying, said that Mr. Leeming had ruined his reputation as a respectable temporary Civil Servant. Personally he believed in self-help and did not believe in subsidies, although he had to administer such things. Lancashire had produced the first tractor biplane in the original Avro and he hoped to see Lancashire continuing to progress.

Sir William Letts, proposing the health of their President, thanked Sir Charles Wakefield for presiding and said how lucky the Club was in having him as its President. Sir Charles was among the first to have a vision of what aviation meant in war and peace. He (Sir Charles) had a warm heart and would certainly do all he could to help the Club. Speaking on behalf of the Avro Company he said that the firm would also do all that it could to help. He hoped that they would have more visits from Sir Charles Wakefield.

Three New Aeroplanes.

Sir Charles Wakefield, replying, evoked great enthusiasm by announcing that he would present a light aeroplane to the Club. When the applause had subsided Sir William Letts announced on behalf of the Directors of A. V. Roe and Company Ltd. that they would also present an aeroplane to the Club. Thereupon Mr. George Parnall offered £100 towards the provision of a third aeroplane to the Club. This offer was capped by Mr. Norris, of the well-known motor firm of Cockshoots, of Manchester, who stated on behalf of the Motor Trade of Manchester that they would provide the money to complete Mr. Parnall's offer.

This offer of course brought the Lancashire Club level with Birmingham, and just to turn the balance in its favour Colonel Groves, lately Director of A. V. Roe and Company Ltd., and a member of the famous brewing firm, announced that he would himself tackle the Brewing Trade of Manchester and that the Club might take it that something very substantial would be done by that trade to provide yet a fourth aeroplane for the Club. And so the proceedings terminated in an atmosphere of much good-will towards all men. After which the official convoy of cars set out for the Avro works.

At The Avro Works.

The visitors to the Avro works were the official party plus the Committee of the Lancashire Aero Club. Sir William Letts intimated at the lunch that the firm would be very pleased to arrange for a visit to the Works at a later date of any other members of the Club at some date to be arranged by the Committee.

On arriving at the Works the official visitors were taken in charge by Sir William Letts, Mr. Fildes, Mr. Lord and Mr. Hubble, the firm's chief engineer. Mr. Dobson, the Works manager, Mr. Prince, chief of the erecting shop, and Mr. Wells, the firm's publicity manager, acted as guides to the non-official guests.

First of all we were shown the firm's own private siding which is capable of accommodating fifty trucks, but was unfortunately stark empty that dismal afternoon. Then we were taken through the timber mill, which was at any rate moderately busy. Thence we were conducted to the firm's enormous main shop where wings, fuselages, and so forth are built up from the parts received from the woodworking and machine shops.

This shop, which looks as if it could hold about a thousand hands without inconvenience, was almost uninhabited. The reason is that the firm just happens to have struck one of those awkward periods when big contracts are just finished and new contracts have not yet been placed. In this case the contracts for Avro Aldershots with Rolls-Royce Condor engines and Avro Bisons with Napier Lion engines are ap



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proaching completion. All the wood and metal parts for them have been finished and passed on to the erecting shop, leaving the metal and woodworking shops empty until a contract arrives for some new type. And then for a period these shops will be full of work while the erecting shop will probably be standing idle.

That is just the worst of the Aircraft Trade. Aeroplanes have not yet reached the stage where manufacturers can go on building standard types for stock, as bicycles and motor-cars are built. Consequently unless contracts are placed so that the beginning of a new contract overlaps the end of a previous contract, there must be periods when the metal and woodworking shops are idle because all their products have been passed on to the finishing shop. And similarly at the beginning of a new contract the finishing shop must stand idle till the built-up parts arrive from the other shops.

One quite realises that the Contracts Department at the Air Ministry does its level best to place its orders with the various firms so that they overlap and keep the various shops going. But, with the best good will, the Contracts people are defeated by the technical experts who keep on hanging up their approval of new types for some absurd little detail which does not affect the usefulness of the machine, which might just as well be put into production while the argument about this detail is being settled.

ECONOMY.

Incidentally among the work which was in hand in this main shop one saw a number of spars, each about 25 feet long, presumably for the Aldershots. These spars are hewn and machined out of a single piece of spruce and, at a rough guess from one's own knowledge of factory prices, one would put the cost of them down at about £30 apiece, even without allowing for the probability of quite a fair percentage being scrapped owing to minute defects in the grain of the timber being disclosed after the spars are actually in the last stage of finishing. The Air Ministry's experts' insistence on one-piece spars in this Year of Grace is an excellent example of official reluctance to absorb progressive ideas.

Spars of such size might be built either as box spars or as laminated spars for something less than half the price. And the amount of timber saved, partly by enabling the makers to use much of the stuff which is machined away to get at these enormous spars and partly by enabling them to cut out flaws in the timber itself and use the shorter lengths which would result, would, one imagines, make it possible to produce at the very least twice as many spars from the same number of original logs.

Somehow the experts never seem to take into consideration the World's shortage of timber which is suitable for aircraft. And of course metal spars would be considerably cheaper and would make us entirely independent of timber.

One would like to state definitely that these are one's own personal opinions and are not a repetition of those of any aircraft manufacturer. For although the Aircraft Industry probably agrees with them as general principles the firms themselves are naturally willing to give the Air Ministry anything it wants so long as they get a reasonable price.

THOSE 504S.

From the main fitting shop we were taken through the erecting shop, where there is still a great deal of work in progress. There are vast quantities of the 504 Avros in various stages of construction but whether they are the K, L, M, N, O or P types one could not stay to inquire. At the present rate of progress the firm will very soon get to the 504Z and then presumably it will have to start on the 504AA, 504AB, and so on for another alphabetful.

Really the 504 Avro is one of the latter-day wonders of the World, when one considers how the original fuselage and wings seem to fit in with all sorts or undercarriages, wheels, twin floats, central floats, skis and so forth, and all sorts of different engines, and produce a first-class flying machine in almost any combination of the lot.

There were also several Aldershot Bombers and Bison Fleet-Spotters either in the early stages of erection or approaching completion.

A DOPE DODGE.

Thence we went to the dope-shop, where planes and fuselages are painted and varnished in the familiar aluminium finish. This shop is about as healthy and airy as a dope-shop can be.

Here one noticed a very interesting dodge which one cannot recollect having seen anywhere else. As a general rule the hot dope-laden air which is exhausted from the dope-shop is blown out through the wall and is presented to the wide World, which does not really want it. So the Avro people have fixed up, end on, against the outside wall of the dope-shop, several of those long packing cases, like pantechnicon vans, in which aeroplanes are usually transported.

Inside these packing cases are trestles on which are laid lengths of freshly-sawn timber which are to be dried prior to working up into spars and ribs and longerons and so forth. The hot air exhausted from the dope-shop blows in at one end of the packing case and out at the other end, drying the timber as it goes, and quite possibly impregnating it to some extent with doped vapour, which may help to act as a preservative. This dodge seems to do away with the usual wood-drying kilns and their consequent cost in labour and heating.

HUSH.

After the dope-shop we were escorted through the machine-shop. Escorted is precisely the right word, because we were very carefully boomed off one particular corner in which work was progressing on a very legitimately hush-hush product of the firm's own devising. One may not say here what it is but one hopes to be able to mention it within the next week or two, even though it may not be ready for description and illustration in detail.

If it comes up to expectations, as one feels sure it will, it ought to be a very material help to progress in certain important phases of aviation. And as it is not an Air Ministry secret it ought to have the greater chance of success.

The machine-shop seems fairly busy but this was possibly merely on machine-work for some new experimental types which, one gathers, the firm is building entirely to its own designs. There is certainly not enough production work in hand to keep that big shopful of machinery revolving full time.

THANKS.

Thence we returned through the big empty main shop and went into the firm's office with a feeling of regret that the present state of the Aircraft Industry makes necessary this continual alternation of hush work and no work.

In the office all the visitors were hospitably entertained to tea by the firm. And thereafter those of us who had to return to Town were transported to the station by our kindly hosts. Personally one was transported through the various journeyings of the day by Mr. John Lord in a nice new Crossley which has a very fine turn of speed.

Unlike Jehu, Mr. Lord does not drive furiously, but he does drive fast and one was particularly impressed by the non-skidding qualities of that Crossley when it was pulled up kindly but firmly by its pilot. Manchester mud is of a peculiarly glutinous nature and affords every facility for skidding, so presumably the Crossley people have produced a non-skidding car very much in the same way that we in this country have produced the best pilots in the World because of our foul climate. Mr. Lord's handling of the car distinctly gave one the impression that he has the makings of a very good aeroplane pilot.

Altogether it was a very enjoyable visit, for which one tenders thanks both to the Lancashire Aero Club and to the Avro Company.—C. G. G.

BUENOS AIRES—NEW YORK.

On Nov. 4, Senor Guillermo Hillcoat, an orgentine aviator, accompanied by one passenger, left Buenos Aires in an attempt to fly to New York via Peru, Central America and Mexico, a total distance of 8,000 miles, which he hopes to cover in 20 days.

On Nov. 5 he arrived at Salta, Argentina.

THE IRISH FREE STATE AIR FORCE.

According to *The Times*, two Bristol Fighter aeroplanes, the first part of a contingent of six, which have been bought by the Free State Government in England, have arrived at Baldonnel aerodrome. The remaining four are expected to arrive before Nov. 14. The aeroplane strength of the Free State Air Force is 12 Bristol Fighters, six Martinsydes, six Avros, and four De Havillands—a total of 28 machines.

Most of the pilots saw service in the War 1914-18, and the whole force is extremely keen. There is a project to provide the first crew to cross the Atlantic from Ireland to the United States, and in order to secure the necessary machine, £15,000 are required. As there is little chance at the moment of obtaining this sum from the Free State Government, the officers of the Air Force are hoping that it may be provided by some private persons who are interested in the development of flying in the Free State.

INDIAN AIR DEFENCE.

According to *The Times*, the *Pioneer* of Allahabad, in a reference to the increasing number of Russian aeroplanes in Afghanistan, draws attention to the fact that six air squadrons are inadequate for the defence of the whole North-West Frontier. It comments also on the complete absence of anti-aircraft guns in India and on the possibility that the Russian machines may be faster than those of the Royal Air Force. It adds :—

If by any chance an air raid on India occurred there would probably be a frenzied rush to send out unlimited machines from England, but were the necessary precautions taken now the possible danger of air attacks from the North-West would be effectively averted.

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THE SCHNEIDER CONTEST AND AFTER.

As the Schneider Trophy contest is now so much a thing of the past there can be no object in publishing a narrative of the event such as might have been written the day after it took place. Everybody knows the unfortunate result, so far as the British team were concerned, and all we can do is to start now in the hopes of achieving a better programme next year.

But there are many hitherto unpublished details concerning happenings before, during and after the contest, which ought to be made known "for information and necessary action," as official documents have it. Therefore one publishes hereafter a miscellaneous collection of letters, extracts from letters and transcriptions of conversations which will, one hopes, tend firstly to the promotion of good feeling between American and British aeronautical people and secondly will help towards general aeronautical progress.

The first letter, which follows, is from Mr. C. M. Keys, the President of the Curtiss Aeroplane and Motor Company Inc. It is given first place because it expresses so well the true feeling of sportsmanship with which the organisers of victory, the Curtiss Company, regard our efforts to defeat them. Mr. Keys says :—

The Schneider Cup Race is over for this year. My Company has been fortunate enough to have been the creator of both the motors and the planes that kept the Cup on this side of the water. For that reason it is, perhaps, not unseemly or out of place that I should express to you, and through you to the flying fraternity of England, the great pleasure that Mrs. Keys and I have experienced, and that the whole Curtiss organisation has experienced, in meeting, under conditions of friendly rivalry, the representatives of Great Britain who came over.

These men, as a group and individually, have won a high place in the esteem of Americans. Not only has their excellent technical work as designers, as constructors, and as pilots won for them the respect of the people, but they have in all other matters, by their sportsmanlike conversation and their excellent demeanour in defeat, confirmed us all in our desire to keep on in constant and keen competition with the English.

At Baltimore conditions were a very severe test both of material and men. The weather was execrable. Your men worked for ten days under very trying physical conditions. My own men were working under the same conditions, so that I have a rather intimate knowledge of them. Your representatives kept their good nature, their good manners and good sportsmanship and came out of the trying situation with a host of friends and no enemies.

As to the ships—the one very sincere regret about the whole matter is that the Supermarine Monoplane was not flying against the Curtiss Biplane in the final test. While we felt confident that we could beat her, we had a wholesome respect for her. My engineers have told me that both your types represent very material advances over two years ago and we do not think there is anything in the present situation that should discourage your further competition.

We look forward with keen anticipation to meeting your men and your material again next year in the same kind of competition and under what we hope will be much more pleasant conditions as to weather and surroundings.

Another very interesting view of the situation comes from a well-known personage in American Aeronautics who expresses a wish that his name should not be mentioned. At the same time his kindly remarks on our mishaps and his reference to the changing of the rules in future events are too valuable to be lost. He writes :—

The delay from day to day was very trying to everyone, particularly the pilots and the mechanics. Delays always tend to develop a sort of anti-climax for races. This was manifested in the low gate receipts for the Pulitzer and repeated at Baltimore. Such deficits place a great burden on flying meets, particularly on the enthusiasts who underwrite the promotion expenses.

In refereace to the Schneider Cup Race, I think the British and Italian teams are inclined to feel that the rules should be changed. Undoubtedly they realise that the rules cannot be changed until after the next meet, but if another competition is set up after the present trophy has been permanently won, there is a tendency to feel that a modification of the present rules would tend to develop more practical seaplanes. I believe the American team also shares this opinion.

Everyone was very disappointed that Captain Biard was eliminated through a miserable mishap. I don't doubt but what it had a very depressing effect upon the British team, although they were such good sportsmen that no one would possibly know it from their conduct. The regret of our fellows was very sincere. It would have made a very pretty race. It is too early to express an opinion as to just what happened. I did not see it and have not had an opportunity of talking with any of the responsible people sufficiently to know just what the real dope is.

Regarding the race in general, I think everybody is convinced that the date should be fixed earlier in the year. I also have the impression that there is a growing conviction that the races in this country would possibly be improved if they permitted some of the men from the Industry to exercise more influence in connection with them.

On Tuesday night we arranged for a farewell dinner for the contestants at the New York Yacht Club. We were very fortunate in being able to get the crowd together and altogether it was a very remarkable meeting. In addition to all of your fellows, we had the Italian team and Breguet, as well as Colonel Scott, the Canadian Controller of Civil Aviation. I know that we had a good time and I believe the others did. At any rate it didn't break up until about 2.00 a.m. I am sure that much permanent good was accomplished through closer acquaintance and more complete understanding of our several problems.

As a matter of historical interest it is worth while to place on record the names of those present at the Banquet to which reference is made. These were :—

Captain of the British Team :—Capt. C. B. Wilson, M.C. Representing the British Air Ministry :—Major J. S. Buchanan. Representing the British Navy :—Capt. Usher, H.M.S. *Valerian*. Representing the Royal Air Force :—Group Capt. M. G. Christie, D.S.O., M.C., British Air Attaché, Washington. Representing the Royal Aero Club :—Colonel M. O. Darby and Mr. Griffith Brewer.

Representing D. Napier and Sons Ltd. :—Mr. H. T. Vane, Managing Director, Mr. F. Hazell Jones and Mr. Linn-Jackson. Representing the Gloucestershire Aircraft Co. Ltd. :—Mr. David Longden, Managing Director, Mr. H. P. Folland, Chief Engineer, and Mr. Hubert Broad, Pilot. Representing the Supermarine Aviation Works Ltd. :—Capt. H. C. Biard, Pilot, and Mr. R. J. Mitchell, Chief Engineer. Representing A. V. Roe and Co. Ltd. :—Mr. A. V. Roe, Director, and Mr. Bert Hinkler, Pilot. Representing the Fairey Aviation Co. Ltd. :—Mr. C. R. Fairey and Mr. J. F. T. Dawson.

Representing the Canadian Air Board :—Col. J. S. Scott, Controller of Civil Aviation.

The Italian Air Attaché at Washington, Major F. Scaroni.

Representing the Macchi Company :—Signori Muzzio Macchi, President, Riccardo Morselli, Nanni De Briganti and Mario Castoldi.

The French Air Attaché at Washington, Major Georges Thenault.

The Japanese Naval Attaché at Washington, Lt. Chikao Yamamoto.

Of the U.S. Army :—Major-General Mason M. Patrick, Chief U.S. Army Air Service, Washington. Colonel B. D. Foulois, Comdg. Officer, Mitchel Field. Lt James H. Doolittle, U.S.A.

Of the U.S. Navy :—Rear-Admiral W. A. Moffett, Bureau of Naval Aeronautics, Washington. Comdr. J. C. Hunsaker, U.S.N. Comdr. H. C. Richardson, U.S.N. Lt. George T. Cuddihy, U.S.N.

Senator Hiram Bingham, President's Aircraft Board. The Hon. H. E. Coffin, President's Aircraft Board.

Also the following representatives of the Aeronautical Chamber of Commerce of America, Inc. :—Messrs. Charles L. Lawrance, Wright Aeronautical Corpn., Paterson, N.J. Grover Loening and Major A. P. Loening of the Loening Aeronautical Eng. Corpn. Thomas H. Huff and Sidney Newborg, Huff, Daland and Co. Inc. Sherman M. Fairchild and C. F. Redden, The Fairchild Aerial Camera Corpn. J. L. Callan, Airships Incorporated, Hammondsport, N.Y. C. M. Keys, F. H. Russell and Glenn H. Curtiss, The Curtiss Aeroplane Motor Co. Inc. Chance M. Vought, The Chance Vought Corpn. Major L. D. Gardner and Earl D. Osborn, "Aviation," New York. S. Albert Reed, The Reed Propeller Co. Charles Ward Hall, New York. S. S. Bradley, The Manufacturers' Aircraft Association, Inc.

There is one statement which one has heard repeated by several of those who have just returned from the States. It is that our machines were seriously handicapped by not having the latest design of Reed airscrew. Certain Americans told British representatives that they judged our screws were about two years out of date. If true, this would look rather as though the latest design in screws were not reaching the Fairey Co., who are the agents in this country for the Curtiss-Reed combination. On the other hand the story may emanate from some source which is inimical to the Curtiss or Fairey firms. One would like to have a dictum on this point from Mr. Reed or the Fairey Co., as it is causing considerable comment among designers and other technical people.

The American pilots all stated that they had been flying fast machines constantly for twelve months. Neither Mr. Biard nor Mr. Broad had done two hours on their machines and Mr. Hinkler was asked to fly in the race the second time he had flown the machine, which is entirely all wrong.

The remedy for this state of affairs is for a "high-speed machine flight" of the R.A.F. to be formed at once, at some place such as Cranwell, and to keep pilots constantly practising on what machines we have. It is doubtful whether any civilian pilot can spare the time to fly fast machines and nothing else for a year, but if any of them can there is no reason why they should not be attached to this flight as Reserve Officers.

A member of the Schneider Committee who was present at the time has expressed his opinion that Mr. Biard's accident was due to the machine stalling on a vertical turn. Mr. Biard was flying on his navigability trials and decided to attempt some sharp turns by way of practice. He completed one satisfactorily and then attempted another. It was noticed that his wing-flaps were hard down. The machine then seemed to get out of control and did a "falling leaf" descent, making, as one onlooker put it, "a huge hole in the sea." Eyewitnesses seem certain that there was no structural failure in the wing, which fact examination seemed to verify.

The reason that the reserve machines were not ready was due to a number of causes. First, there was no hangar accommodation at Bayshore when the team arrived at Baltimore, and when temporary hangars were erected they were leaky and rickety. It will be remembered that at Cowes in 1923 all the competitors were accommodated in the big permanent sheds of S. E. Saunders and Co. on the invitation of Mr. Sam Saunders, and that when the contest was held at Bournemouth in 1919 the Saunders sheds were used by the foreign competitors, the Avro and Fairey and Supermarine firms using their own sheds on Southampton Water and flying their machines to Bournemouth on the day of the contest.

Things were nearly as bad for the American machines,



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but these only had a few days in their temporary sheds instead of a few weeks. Therefore with the constant danger of damage to the machine through hangars collapsing in bad weather the reserve machines were not unpacked until the last moment and then there was a shortage of men, presumably because our small crew were all busy on the other machines.

When the reserve machine finally went for its navigability tests, the high seas which wrecked seventeen U.S. Navy machines the previous day had not entirely abated, and there were big waves. These weakened the float struts, which gave way, and the airscrew cut the tip off one float.

The machine did not sink even then and was towed in with only this damage.

Captain Charles Wilson skippered the team with great skill and tact, and with an absence of fuss he surmounted numerous difficulties. And one gathers that there were a very large number of difficulties to be surmounted.

WHAT THE AEROPLANE SAID YESTERDAY.

The following is an extract from THE AEROPLANE, Oct. 24, 1923.

One gathers that Mr. Johns is authorised by substantial people in America to offer very tempting proposals to the British Aircraft Industry which it is hoped will persuade British firms to build some real racing machines and send them to the States next year. But if such machines are to go there our constructors must start now to build them so as to have them in tune in good time. Otherwise we shall merely have a repetition of the *Shamrock* and lawn tennis and polo and Papyrus fiascos.—C. G. G.

It will be remembered that after this the Air Ministry placed its order for one machine but so late that it was only tested (with unfortunate results) five weeks before the race was due to take place.

The following is an extract from THE AEROPLANE, Sept. 24, 1924, written after the accident to the Gloster-Napier II on its first test.

It is suggested that the proper procedure now is to get hold of four pilots weighing round about eight stone and let them for the next year practise continuously on fast racing seaplanes and in the meantime exhaustive tests must be made with seaplanes of this type so that next year we shall be able to send over to America a complete team and reserves who have had plenty of practice on the machines in which they are going to fly in the race.—G. D.

Now at long last everyone else is saying the same thing. The question is, will the Air Ministry this year do its duty and order new machines at once or will it again wait till March to order, and neglect the training of pilots?

THE ROYAL AIR FORCE.

The London Gazette

Nov. 3.

GENERAL DUTIES BRANCH.—The following Flg. Offs. are transferred to the Reserve, Class A (Nov. 1):—J. J. Comerford, C. McL. Reid.

The following are restored to full pay from half-pay:—Sq. Ldr. R. L. G. Marix, D.S.O. (Sept. 16) (substituted for the notification in the *Gazette* of Oct. 6); Flt. Lt. G. C. O'Donnell, D.F.C. (Oct. 26).

Plt. Off. on probation A. R. Dunlop resigns his S.S. comn. (Oct. 31); the S.S. comn. of Plt. Off. on probation F. Sisson is terminated on cessation of duty (No. 1); Flg. Off. J. Messer-Bennetts (Lt., K.O.S.B.) relinquishes his temp. comn. on return to Army duty (Oct. 29).

STORES BRANCH.—Flt. Lt. G. Oliver is placed on the retired list (Nov. 3); the S.S. comn. of Plt. Off. on probation J. Cuming is terminated on cessation of duty (Nov. 4).

RESERVE OF AIR FORCE OFFICERS.—S. W. White is granted a commission in Class A, General Duties Branch, as a Plt. Off. on probation (Nov. 3); Flg. Off. C. H. L. Needham resigns his commission in Class B on appointment to a commission in Class A.A. (Aug. 13), C. H. L. Needham is granted a commission in Class A.A., General Duties Branch, as a Plt. Off. on probation (hon. Flg. Off.) (Aug. 13); Plt. Off. R. A. Whitehead is confirmed in rank (Sept. 26).

The following are transferred from Class B to Class C (Nov. 3):—Obs. Off. A. W. C. Bayes, Flg. Off. C. B. M. Dale.

AUXILIARY AIR FORCE

GENERAL DUTIES BRANCH.—The following to be Flg. Off.:—No. 603 (CITY OF EDINBURGH) SQUADRON.—T. Usher (Nov. 10).

MEMORANDUM.—The permission granted to Lt. R. W. Griffiths to retain rank is withdrawn on his enlistment in the Territorial Army (May 5).

Appointments.

Week ending Nov. 9.

GENERAL DUTIES BRANCH.—Wing Commander J. B. Bowen, O.B.E., to Cambridge University Air Sqdn. for duty as Chief Instructor, 1/10.

Squadron Leaders A. G. Weir, to Oxford University Air Sqdn., 11/10. L. G. S. Payne, M.C., A.F.C., to H.Q., Iraq, 31/10. S. E. Baker, D.S.O., M.C., A.F.C., to Air Ministry, 4/11. H. S. Powell, M.C., to No. 7 Grp. H.Q., Andover, 5/11. P. A. O. Leask, to Aircraft Depot, Iraq, 21/10. N. C. Spratt, O.B.E., to H.Q., Iraq, 21/10. J. B. Cole-Hamilton, to No. 20 Sqdn., India, 8/10.

Flight Lieutenants J. S. T. Fall, D.S.C., A.F.C., to No. 6 Sqdn., Iraq, 3/10. A. S. G. Lee, M.C., to R.A.F. Depot, 4/11. J. W. B. Grigson, D.S.O., D.F.C., to H.Q. Iraq, 28/10. C. J. S. Dearlove, to H.Q., Iraq, 28/10. F. G. A. Robinson, to Station H.Q., Spittlegate, 6/11. R. V. Goddard, to Cambridge University Air Sqdn., 1/10. E. C. Emmett, M.C., D.F.C., to R.A.F. Depot, 9/11. G. H. Cock, M.C., J. J. Williamson, A.F.C., J. E. Maclennan and G. S. Hodgson, A. F. C., to No. 4 F.T.S., Egypt, 17/10. C. L. Scott, D.S.C., to No. 216 Sqdn., Egypt, 17/10. M. F. Browne and G. T. Richardson, to Aircraft Depot, Egypt, 17/10. G. M. F. O'Brien, D.S.C., D. L. Blackford, J. D. S. Denholm and R. C. Bryant, to H.Q., Egypt, 17/10. H. L. Rough, D.F.C., to No. 208 Sqdn., Egypt, 17/10. S. D. Macdonald, D.F.C., to No. 47 Sqdn., Egypt, 17/10.

Flying Officers F. Woolley, D.F.C., to remain at I.A.A.D., Henlow, instead of to No. 1 F.T.S. as previously notified. (Hon. Flt. Lt.) L. J. Stewart, to No. 2 F.T.S., Digby, 10/11. (Hon. Flt. Lt.) C. M. E. Gifford, to R.A.F. Base, Gosport, 10/11. F. E. North, to No. 45 Sqdn., Iraq, 3/10. H. Buxton, to Engine Repair Depot, Egypt, 17/10. N. Vintcent, D.F.C., to No. 208 Sqdn., Egypt, 17/10. A. H. Love, to School of Army Co-operation, Old Sarum, 9/11. L. H. Stewart, to Aircraft Depot, Iraq, 18/10. (Hon. Flt. Lt.) R. W. M. Hall and A. H. D. Livock, to No. 5 Sqdn., India, 15/10. R. W. Pilling, (Hon. Flt. Lt.) L. S. Hamilton and (Hon. Flt. Lt. F. W. Wiseman-Clarke, to No. 20 Sqdn., India, 15/10. (Hon. Flt. Lt.) E. H. D. Spence and R. O. Jones, to No. 27 Sqdn., India, 15/10. T. Fetherstonhaugh, to No. 28 Sqdn., India, 15/10.

STORES BRANCH.—Flight Lieutenant W. J. King, D.C.M., to H.Q., Egypt, 17/10.

Flying Officers A. T. Wells and L. T. Sanderson, to Stores Depot, Egypt, 17/10.

Pilot Officers H. T. Messenger, to No. 70 Sqdn., Iraq, 3/10. J. E. Davies, to No. 45 Sqdn., Iraq, 3/10. M. H. Jenks, to No. 8 Sqdn., Iraq, 3/10.

MEDICAL BRANCH.—Squadron Leader J. Kyle, to R.A.F. Depot on transfer to Home Estab., 26/10.

Flight Lieutenant C. A. Lindup, to No. 60 Sqdn., India, 14/10.

Flying Officers G. M. Anderson, M.B., and B. L. Edwards, M.B., to Research Laboratory and Medical Officers' School of Instrn., Hampstead, on appointment to S.S. Comns., for short course, 28/10. J. McM. Wilder, to School of Army Co-operation, Old Sarum, 23/10. W. D. McKeown, M.B., to Research Laboratory and Medical Officers' School of Instrn., Hampstead, on appointment to a S.S. Comn., for short course, 3/11.

ACCOUNTANT BRANCH.—Flying Officers F. H. Wakeford, to Aircraft Depot, Iraq, instead, of to R.A.F. British Hospital as previously notified, 22/9. B. L. Blofeld, to Stores Depot, Iraq, instead of to No. 55 Sqdn. as previously notified, 22/9. H. A. Murton, to No. 1 Sqdn., Iraq, instead of to No. 4 Armoured Car Co. as previously notified, 22/9. W. R. Donkin, to No. 4 Armoured Car Co., Iraq, instead of to Aircraft Depot as previously notified, 22/9

Pilot Officers R. W. Collinson, to No. 3 Sqdn., Upavon, 10/11. C. Lorimer, to Record Office, Ruislip, 13/11.

Short Service Officers.

The Air Ministry announces:—

The Royal Air Force is prepared to accept, during the next few months, a number of officers for flying duties under the short service commission scheme and applications are accordingly invited from suitable candidates.

Applicants should be between the ages of 18 and 25, well educated, of sound physique, and possessed of good eyesight. Those judged from their applications to be suitable will be interviewed at the Air Ministry by a Selection Committee and if selected and passed by the medical board will be gazetted as pilot officers on probation. Provided they qualify for promotion officers become eligible for the rank of Flying Officer after not less than 18 months' service.

Short service commissions are granted for 5 years' service on the active list followed by a period of 4 years' service on the Reserve.

The present yearly rates of pay and allowances for unmarried officers amount to about £420 for Pilot Officers, £490 for Flying Officers under 2 years' service and £540 for Flying Officers over 2 years' service. On transfer to the Reserve on completion of their period of five years' active list service officers receive a gratuity of £375.

A strictly limited number of officers serving on short service commissions may be selected for transfer to the permanent list.

Requests for forms of application and copies of the detailed regulations should be made in writing to the Secretary, Air Ministry, Adastral House, Kingsway, London, W.C.2.

The R.A.F. Boxing Association.

The following matches have been arranged by the R.A.F. Boxing Association:—

Feb. 4, v. Civil Service at Uxbridge. Feb. 19, v. Oxford University at Oxford. The dates of matches with Royal Marines and with Cambridge University have not yet been decided.

The R.A.F. Team Boxing Championships.

The following is the result of the draw for the First Round of the Royal Air Force Team Boxing Championships:—

Division "A."—Netheravon v. Flowerdown. Halton v. Henlow. Bye: Manston and Uxbridge.

Division "B."—Bircham Newton v. Duxford. Spittlegate v. Digby. Old Sarum v. Upavon. Byes: Calshot, Sealand, Martlesham Heath, Shrewsbury and Eastchurch.

Hockey.

The following are the results of the Second Round of the R.A.F. Senior Hockey Cup:—

Cranwell beat Shrewsbury 2—0; Halton beat Henlow 7—1; Manston beat Kenley 6—0; Calshot beat Netheravon 2—1.

The following are the results of the Second Round of the R.A.F. Junior Hockey Cup:—

Felixstowe beat Spittlegate 1—0; Ruislip beat Kidbrooke 2—0; Larkhill beat Lee-on-Solent 3—1; Old Sarum beat No. 3 (Fighter) Squadron 2—1.

The Grain Dinner

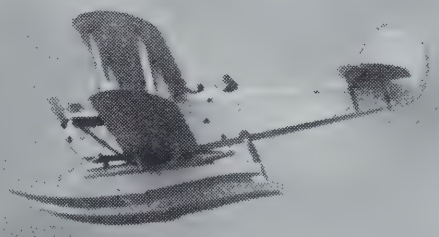
The seventh annual Reunion Dinner for officers who were at any time stationed at the Isle of Grain Air Station will be held on Saturday, Nov. 21, at 7.30 for 8 o'clock, at the Criterion Restaurant, Piccadilly, W.1. Tickets, 11s. 6d. each, exclusive of wines, may be obtained by any old Grain officers, for themselves or for guests, from Capt. L. A. T. Pritchard, 77, Biddulph Mansions, Elgin Avenue, London, W.9 (Telephone Maida Vale 1455).

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AIR TRANSPORT ECONOMY.

The paper by Mr. W. L. Cowley, read before the Royal Aeronautical Society on Oct. 29, consisted of a very detailed analysis of the effects on the cost of operating a regular air service of a large number of factors. Among the factors considered are the seasonal variation in traffic, the size of aircraft employed, engine weight per h.p., reliability and its economic cost, possible improvements in airscrew design, the length of flight stage, the effect of winds, and of the cruising speed of machines.

Expressions for the variations in costs produced by all these factors are given—subject to clearly defined assumptions which are, however, of a more or less debatable nature in many cases. It is difficult to see how the paper can usefully be abstracted, as it is in many respects already very highly compressed, and it is far too long to reproduce in full.

The author's general conclusions, however, may usefully be recorded. These are as follows :—

(1) Improvement in reliability of existing services in the winter months would, if it produced a levelling out of the seasonal variation in the traffic, greatly increase economy.

(2) Greater reliability should result from the use of three-engined machines capable of flying on two engines. If, as there is reason to believe, economy increases with size, the three-engined type may be expected to develop from economical reasons alone, but even if it does not develop on purely economic grounds the increased comfort and reliability will justify the type.

(3) Improved economy should result from increasing the cruising h.p. of engines (i.e., running them harder). Reliability would tend to suffer, but the gain should suffice to cover the increased cost of overhaul and maintenance to restore the reliability to its present level.

(4) Considerable gain may be expected from increasing airscrew diameter and altering the gear ratio of present types of engine.

(5) The effect of winds on economy is important if the requirement of reliability and punctuality is considered and the cruising speed must be adequate to overcome adverse winds without undue loss of time. A cruising speed of 95 m.p.h. is near the economic minimum (under the conditions considered in the paper) and even for freight machines the cruising speed of maximum economy will not fall much below this figure.

Freight machines will differ from passenger types mainly by the smaller body space required for a given load and by the consequent reduction in body resistance.

(6) Apart from any abnormal development one of the most promising fields for research would be upon the reduction of body resistance and the determination of the most suitable form to give least drag for a given body space.

THE EVAPORATIVE COOLING OF ENGINES AND THE CONDENSATION OF THEIR EXHAUST.

The paper by Wing Cdr. T. R. Cave-Brown-Cave, read before a joint meeting of the Royal Aeronautical Society and the Institute of Automobile Engineers, dealing with the Evaporative cooling of aero engines and the condensation of Exhaust Gas for Water Recovery, deals with two subjects apparently entirely distinct.

In a large passenger-carrying airship intended for long-distance journeys, some considerable amount of heat is required for warming passenger quarters and for cooking purposes. Condensation of exhaust gases for the purpose of recovering water to compensate for the weight of fuel consumed promises to lead to great economy in the gas by reducing the quantity which must be valved to restore equilibrium when landing. It therefore seemed probable that two birds could be killed with one stone, by initially cooling the exhaust of the engines in an exhaust-heated boiler, as one stage towards condensation of the exhaust, and using the steam from that boiler for heating and cooking. Examination of the whole problem showed that any method involving water-cooling of the exhaust system would call for much larger cooling areas, and a greater weight than was necessary with air-cooling throughout.

On the other hand the advantages of steam as a method of conveying heat to the points where it was required were so enormous that unless some alternative method of producing the steam could be devised, the extra weight and area of water-cooling part of the exhaust system would have to be faced. The alternative method of producing steam has been found in the evaporative cooling of the engines themselves.

The evaporative cooling of engines—which may be of equal value in the aeroplane as in the airship—is dealt with first in the paper. (It may be mentioned here that evaporative cooling is no new idea. The Antoinette engines of 1908 and onwards were cooled by the evaporation of the water in their jackets and the condensation of the steam so formed by air-cooled condensers.)

Recent tests made in 1923 and 1924 indicate that when the water in the jackets of a water-cooled engine is allowed to reach boiling point, the temperature of the hottest points of the cylinder surface actually fall—although the cooler parts rise in temperature. This is a somewhat surprising result, and can only be accounted for by increased turbulence of the water at these hot points, leading to greater convection. The effect is entirely beneficial—reduction in the maximum temperature of the head reduces the tendency to pre-ignition and to valve distortion and other troubles, and the higher temperature of the cooler parts of the cylinder will reduce piston friction, and the general reduction of temperature difference will reduce distortion and internal stresses caused thereby.

Tests made both on a Rolls-Royce Hawk engine and on a large single-cylinder unit built by Beardmores show that an engine of normal water-cooled type can be run successfully and without loss of power or mechanical trouble without alteration to the engine itself.

A normal radiator gives ample surface for the condensation of the resulting steam, but the arrangement of the cooling system requires alteration. The outflow from the jackets will consist of a mixture of water and steam, both at boiling point. This mixture must pass to some form of separating chamber, the water can then be returned directly to the jackets, and the steam alone passed to the radiator for condensation. The condensate is then allowed to drain back into a water tank, where it mixes with the separated water and is returned therewith to the jackets.

The steam, or such part of it as is necessary, can very conveniently be conveyed to places where heat is required, and used for warming passenger cabins, cooking, and even heating pilots' cockpits. Even when heat is not required for this purpose, the condensation can be carried out in special panels on the wing or body surface (i.e., in wing radiators), with much less increase in drag than is involved in the usual types of radiator. This can also be done with water-cooling, but as one pound of steam carries 966 British Thermal Units in the form of latent heat, whereas one pound of water within the usual temperature range of 20°F. carries only 20 B.T.U., a very much smaller weight of fluid in the connecting and cooling system is necessary when using steam.

Other advantages of the system are that engines will warm up more quickly with the evaporative system, and will cool down less quickly on a long glide; that at high altitudes much higher temperatures of the cooling system will be possible; that over-cooling is practically impossible when throttled; and that loss of water through a leak, or by evaporation, as the result of abnormally high air temperatures, will be relatively smaller.

Thus the evaporative system of cooling offers advantages which, if they can practically be realised, may be of very great value in all types of aircraft.

The problem of water recovery from the exhaust gases is in aeronautics confined in importance to the case of the airship. In this case it is almost vitally important. An airship such as R.101, on a voyage from England to Egypt, would burn some 25 tons of fuel. Although the ship can be flown out of equilibrium, it is not safe to land or to lie at a mooring mast except in equilibrium. Therefore the ship must leave England in equilibrium, and unless gas has been valved, or she has recovered water from the exhaust, she will arrive in Egypt 25 tons light. To make landing safe, 823,000 cub. ft. of hydrogen—costing £600—would need to be discharged.

Then for the return journey fresh fuel would be taken on, and to restore equilibrium, a similar quantity of gas would have to be replaced. In practice, therefore, a refuelling station is of no use unless it is also a gas station.

If the whole of the water formed by the combustion of oil or petrol could be recovered, a weight considerably greater than that of the fuel consumed would be available. In practice the whole cannot be recovered. The cooled gas will always be saturated with water and the amount of water of saturation thus lost varies with the temperature and pressure to which the gas can be cooled. Practically the ultimate temperature and pressure is determined by the temperature and pressure of the air in which the ship is flying, and the water recovery actually possible varies in a complicated manner with atmospheric conditions and with the altitude of flight. Generally the water recovery will improve with height, but it will frequently be impossible to recover water equal to the weight of fuel consumed.

If some part of the gas which would normally be valved is used in the engines, the water available for recovery will be increased, the weight of oil or petrol burnt will be decreased, and a large saving in gas will result.

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THE MARCHESE'S ROUTE.

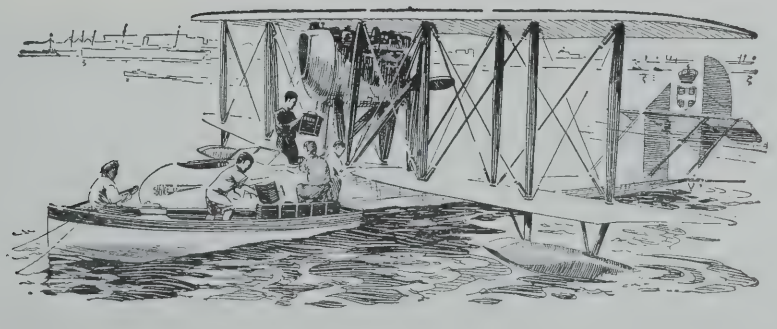
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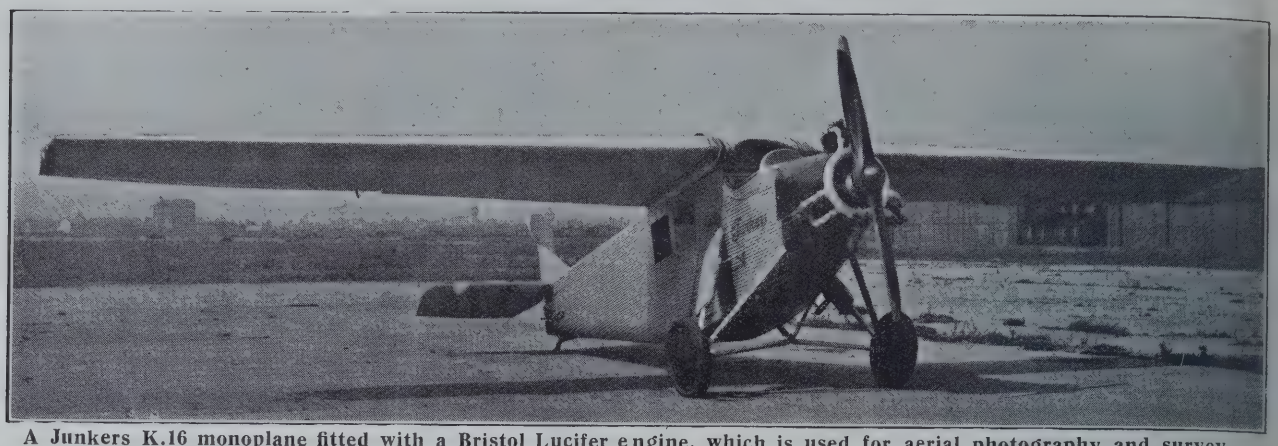
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A Junkers K.16 monoplane fitted with a Bristol Lucifer engine, which is used for aerial photography and survey.

A BRISTOL-ENGINED GERMAN MONOPLANE.

A Junkers K.16 monoplane, shown in a photograph, has been fitted with a Bristol Lucifer engine of 100 h.p., and is used for aerial survey and photographic work. Engine reliability being of some considerable importance in work of this type, the choice of the Lucifer speaks for the reputation which this type of engine has achieved in Germany.

The K.16 type, which has already been described in this paper, was designed for light transport service, and has a very roomy cabin normally seating two passengers.

The dimensions and performance of the type with the Bristol engine are :—

Span	12.8 m. (42 ft. 4 in.)
Length	8.0 m. (26 ft. 3 in.)
Wing area	19 sq. m. (205 sq. ft.)
Weight empty	320 kg. (708 lbs.)
Weight loaded	852 kg. (1,900 lbs.)
Wing loading	45 kg./sq. m. (9.3 lbs./sq. ft.)
Power loading (106 h.p.)	7.75 kg./h.p. (17.8 lbs./h.p.)
Max. speed	150 km.h. (93 m.p.h.)
Ceiling	3,500 m. (11,500 ft.)

AMERICA'S NEW AIRCRAFT CARRIER.

The second of the United States Navy's new aircraft carriers, the *U.S.S. Lexington,* was launched at noon, Oct. 3, at the Fore River plant of the Bethlehem Shipbuilding Corporation in Quincy, Mass. As in the case of the *U.S.S. Saratoga,* of which this ship is a duplicate, the *Lexington* is one of the largest ships ever launched on the Western Hemisphere and will excel the first-line battleships of the United States in propulsion power.

This will be the third U.S. aircraft carrier. The only one now in service is the *Langley.* That ship was rebuilt from the old collier *Jupiter,* the first vessel of the Navy to be equipped with turbine-electric drive.

The *Saratoga,* launched this spring at Camden, N.J., is not yet in service. Originally, both the *Saratoga* and *Lexington* were to have been battle-cruisers, but the modification of the American naval program, owing to the Washington Agreement on the limitation of armament, led to the conversion of these battle-cruisers into aircraft carriers. As a naval vessel, the *Lexington* (with the exception of her twin, the *Saratoga*) is the longest in the world. Her length is 874 feet and her beam, 105 feet. The output of her electric generating equipment is 180,000 h.p.—greater than the combined rated output of the six electrically-driven capital ships now in commission; namely, the *New Mexico, California, Tennessee, Maryland, Colorado* and *West Virginia.*

The complete electrical equipment for the *Lexington,* as in the *Saratoga,* was furnished by the General Electric Company of America. The propulsion apparatus consists of four 35,200-kilowatt turbine generators, supplying current to eight 22,500-horse power motors. The turbines are operated by steam from 16 oil-fired boilers.

The motors are connected in pairs to each of the four propeller shafts. The total energy thus delivered, to each shaft being 45,000 horse-power—sufficient to give 317 r.p.m. at the propeller and to propel the ship at the rate of 33 knots, or approximately 39 miles an hour.

In addition to the propulsion machinery, there are provided six 750-kilowatt, direct current, auxiliary turbine generators which furnish current for all electrical purposes except main propulsion. Among other uses to which this electricity is put is the operation of the steering gear, anchor windlass, ventilation fans and lighting systems.

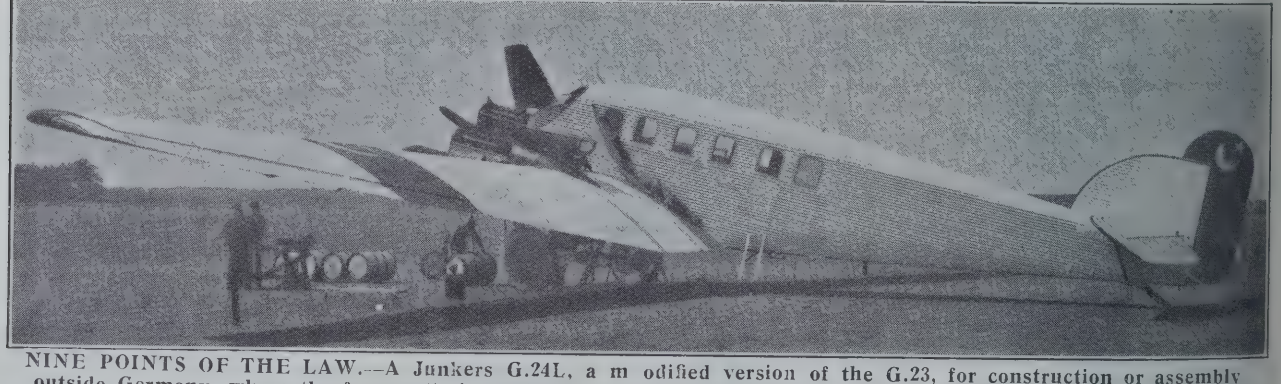
As in the *Langley* and *Saratoga,* the *Lexington* is completely and specially equipped for radio work. The antennae run to the deck from a single topmast, which will have to be lowered when the ship passes under the Brooklyn Bridge.

THE JAPANESE AVIATORS IN ROME.

On Oct. 27, Major Abé and Mr. Kawachi, who recently flew from Tokyo to Paris and thence to London, Brussels and Lyon, arrived at Centocelli Aerodrome at 16.30 hours.

They were welcomed by representatives of the Italian Government, the Royal Commissioner of Rome, the President of the Aero Club, and a large number of Italian officers. An elaborate programme of entertainment was prepared.

The two Breguet XIX biplanes will be dismantled and returned to Japan by boat from Rome.



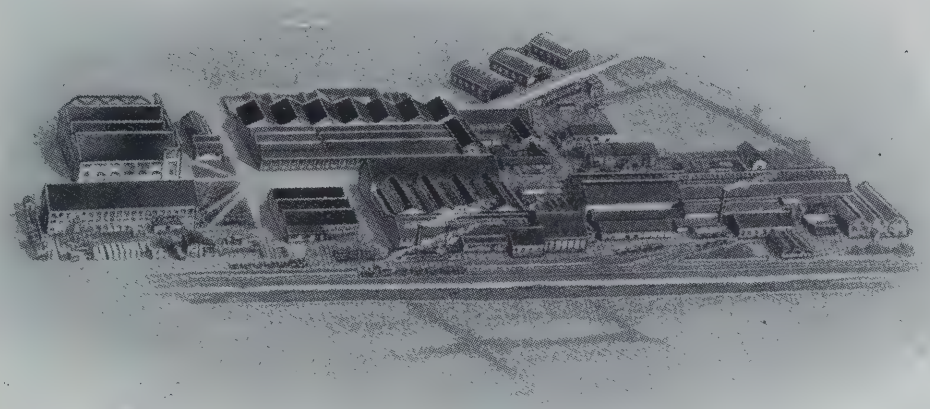
NINE POINTS OF THE LAW.—A Junkers G.24L, a modified version of the G.23, for construction or assembly outside Germany, where the famous "nine points" are not enforceable. This particular machine has been assembled in Turkey, as may be seen by the crescent on her tail and wings.

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THE LIGHT AEROPLANE CLUBS.

The London Aeroplane Club.

During the week ending Saturday, Nov. 7, flying instruction was carried out on every day with the exception of Tuesday. Flying on certain days was somewhat restricted owing to the bad weather. The total flying time was 23 hours 15 minutes.

Practically all the instruction was given by Mr. F. G. M. Sparks as the second instructor, Mr. G. T. Witcombe, was taking a week's holiday due to him after three months' instructional flying.

The following members took flying instruction:—C. H. Craig, C. Quirk, E. S. Brough, N. Jones, Mrs. Eliott-Lynn, R. Thomas, Major Beaumont, D. Kittel, S. C. Richards, R. Holmes, J. Barros, H. Solomon, W. E. F. Johnston, H. F. Wight, Miss Salusbury, W. Hay, A. Lees, A. Clarkson, Miss O'Brien, S. Thompson, D. H. P. Esler, Mrs. Atkey, K. V. Wright, R. P. Cooper, R. A. St. John, A. J. Richardson, J. S. M. Michie.

The following members made solo flights:—Mrs. Eliott-Lynn, G. N. Warwick, W. Roche Kelly, and G. H. Craig.

On Wednesday, Nov. 4, Mrs. Eliott-Lynn made further flights in the tests for her Aviator's Certificate. Having attained a height of 6,000 feet the descent was made with engine cut off and the alighting made on the Aerodrome within the specified distance.

The Lancashire Aero Club.

On Thursday, Nov. 5, a few instruction flights were given in the morning and Sir Samuel Hoare, the Secretary of State for Air, watched D. F. Dyson have instruction from Mr. Scholes. Sir Samuel Hoare and Air Vice-Marshal Sir Sefton Brancker expressed their pleasure at the condition of the machines and their satisfaction at the Club's organisation. Colonel Shelmerdine was also with the party and went fully into the details of how the flying was arranged.

On Friday, Nov. 6, it was a perfect day for flying. Mr. Scholes took "I.V" up for a brief test flight and then gave S. Crabtree half-an-hour's "dual." J. Leeming did 15 minutes' olo and performed two of what he insists on calling stalled turns. These stalled turns are becoming famous, as people on the ground who watch his flying from take off to landing never know they have been done until Mr. Leeming lands and tells the watchers all about it. H. S. Macnair then went with Mr. Scholes for twenty minutes. This was Mr. Macnair's first "dual." Finally S. Crabtree went up again with Mr. Scholes and used up the remaining daylight. All safely back in the hangar at 4.55.

Mr. Cantrill, the Club's other Instructor, having no pupils down at the aerodrome, spent the afternoon shooting and returned with two good hares. This shooting is becoming a popular pastime for those who are waiting to fly.

On Sunday, Nov. 8, it was not possible to fly during the morning owing to the bad weather. After lunch the I.P.W. was used a little and then Mr. Scholes took "I.V" up on ten minutes' tests, after which he took the following pupils for "dual":—S. Crabtree 30 minutes, H. Stern 20 minutes, D. F. Dyson 20 minutes, A. Tummers 15 minutes.

Mr. Cantrill on "I.R" after test took the Air Ministry Representative, who was down inspecting the aerodrome, up for fifteen minutes' run. Then H. Goodyear had 20 minutes' "dual" and B. Wilkinson 15 minutes. Mr. Stern is setting a new fashion in pilot's suiting, the garb he wore on Sunday, it is believed, is one of the latest winter styles illustrated in last week's *Vogue*.

The Newcastle-upon-Tyne Aero Club.

The following have flown under instruction with Major Packman:—Messrs. R. M. Stobie (3 hrs. 35 m.), R. N. Thompson (35 m.), C. Thompson (15 m.), E. C. Kennedy (15 m.), W. M. MacKay (1 hr. 25 m.), A. E. George (49 m.), G. H. Twine (15 m.), L. Smith (50 m.), A. D. Bruce (15 m.), P. F. Heppell (35 m.), N. S. Todd (1 hr. 35 m.), W. Todd (30 m.), J. T. Ellis (32 m.), J. C. Lawrence (30 m.), J. D. Irving (1 hr), T. E. N. Wardill (16 m.), J. Bell (17 m.), P. R. Kennedy (15 m.), Miss C. R. Leathart (46 m.).

Mr. P. F. Heppell carried out the first solo of the Club on Wednesday, and Mr. Stobie his first on Thursday. Mr. Heppell solo 55 m., Mr. Stobie 15 m.

Passengers:—Miss Parkin 15 m., Miss Little 15 m., Miss Stephenson 15 m., Mr. Bowser 15 m.

Mr. Baxter Ellis flew for 45 minutes during the week.

Total hours flown:—G-EBLX 8.13, G—EBLY 10.42; 18.55 in all.

The weather has been very unsettled throughout the week and no flying took place on Tuesday.

On Sunday as much flying as possible was put in during the intervals between hail and snow showers, and although it was exceedingly cold all day, between thirty and forty members and friends went out to the aerodrome. During the earlier part of the week members did not turn up, considering that the weather would prevent flying, but now that they know how bad the weather must be to stop Major Packman he is kept very busy each day.

During bad intervals, and when dusk sets in, the aerodrome is deserted in favour of the Club rooms, which are now very comfortable, and, thanks to several ladies who have taken upon themselves to provide tea on Sundays and Wednesdays, a happy time is spent by all when flying is over for the day.

The men's lounge, which is fully licensed, is also well patronised. There are, therefore, attractions which compensate those who make the journey to the aerodrome, even if bad weather prevents flying.

Modifications to the cylinder heads of both engines have been carried out during the week. I.X. had completed 49 hours 35 minutes flying when the heads were removed and it was found that she would easily have completed 50 hours without trouble.

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 15; Tuesday, 0; Wednesday, 14; Thursday, 14; Friday, 14 Saturday, 9; Sunday, 1.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin. Machines 42, passengers 101, freight 16 tons.

AIR UNION:
Paris—London: Machines 13, passengers 65, freight 8 tons.

K.L.M:
Amsterdam—Rotterdam—London: Machines 12, passengers 7, freight 3 tons.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES: Nil.

Total number of trips by British Machines: 42, carrying 101 passengers. Foreign machines: 25, carrying 82 passengers.

Comparative Figures:

For week ending Nov. 8:
Machines, 67; Passengers, 183; Crews, 80; Total personnel, 263.

Corresponding week, 1924:
Machines, 85; Passengers, 285; Crews, 106; Total personnel, 391.

Corresponding week, 1923:
Machines, 71; Passengers, 167; Crews, 107; Total personnel, 274.

Corresponding week, 1922:
Machines, 45; Passengers, 160; Crews, 73; Total personnel, 233.

Corresponding week, 1921:
Machines 67; Passengers, 96; Crews, 99; Total personnel, 195.

Corresponding week, 1920:
Machines, 52; Passengers, 79; Crews, 63; Total personnel, 142.

Croydon Notes.

Imperial Airways Ltd. have now entirely recovered from their summer lapse and even in the bad weather of the past weeks they have maintained a good level of reliability and punctuality. Punctuality has for some weeks now been one of Imperial Airways' strong points, and if a machine has been a minute or so late in starting it has been made a case for vigorous inquiry.

This gives additional point to the following story. Mr. Drew was the pilot of a Handley Page flying from Paris to London. Before starting an American lady passenger told Mr. Drew that the last time she had flown she got a seat in which she was thrown about rather, and could not see well out of the window. Although the machine was due out, Mr. Drew risked censure and spent a few minutes making the lady comfortable. On arrival at Croydon she registered great pleasure on account of the trip and presented Mr. Drew with the remainder of the wine which she had left in the half-bottle from her lunch basket, and her used glass! All pilots envy Mr. Drew's luck!!!

On Friday afternoon Mr. Armstrong was returning in D.H.34 G-EBBV from Amsterdam when the undercarriage had one side of itself knocked off, apparently in taking off. Mr. Armstrong was made aware of this mishap and made a beautiful slow landing at Croydon in semi-darkness without damaging the machine in any way.

The Handley Page Hampstead (with three Jaguars) is suffering from trouble with the rudder. This was originally reported by Imperial Airways pilots on first testing the machine, and was confirmed by the Farnborough test pilot. Consequently the machine is not being used on the service as yet.

Ever since the first W.8 appeared in 1919 there has always been this trouble. The tails of these machines appear to bounce constantly between the slipstreams of the wing engines, and unless the pilot works at the rudder the whole time it is uncomfortable for the passengers. The W.8bs behave much as the original W.8 did, and it looks as though the W.10s will have the same trick, as one hears that they have standard tails. One is told by those who should know that it is a question of either fitting biplane rudders so as to have a rudder in each slipstream, or else altering the fin area.

It is understood that Imperial Airways Ltd. in fixing their contract with Handley Page Ltd. specified that the machines are to be delivered by a certain date and in satisfactory flying condition, subject to certain penalties. Should rudder trouble be a characteristic of the new machines it will be interesting to see whether Imperial Airways consider that the machines are in a fit condition.

The A.D.C. Aircraft Ltd. still seem fairly busy and there are rumours of new engines in the offing. Besides the Cirrus it is said that other clouds are gathering at the call of Major Halford.—G. D.

Genoa-Buenos Aires.

On Nov. 2, Major Casagrande, accompanied by Capt. Ranucci, two mechanics and a wireless operator, left Genoa on a Savoia 55 (two 450 h.p. Isotta-Fraschini "Asso" engines) in an attempt to fly to Buenos Aires. The flight will be divided into seven stages, as follows:—Genoa—Cathagena or Casablanca—Canary Islands—Cape Verde Islands—San Paulo Rock (in mid-Atlantic)—Pernambuco—Rio de Janeiro—Buenos Aires, a total distance of approximately 8,000 miles.

The machine used is a Savoia 55 twin-engined, twin-hulled

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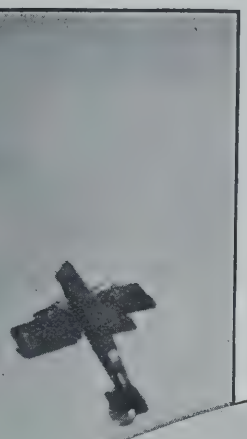
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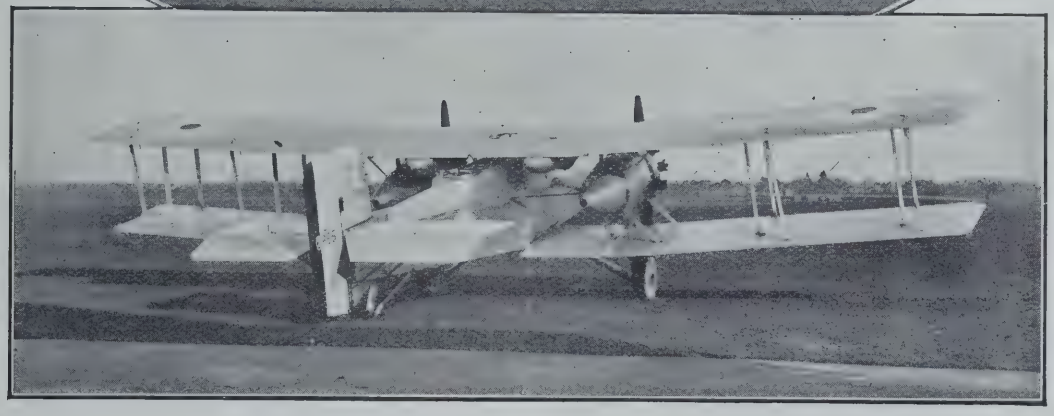


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monoplane flying boat, originally designed as a torpedo-carrier, heavy bomber or mine-layer. The two hulls are short, terminating in the rear of the trailing edge of the wing, the tail unit being carried on outriggers. The two engines are mounted in one nacelle above the centre of the wing and drive tandem airscrews.

The pilot and spare pilot's seat are situated in the middle of the leading edge of the thick monoplane wing. Normally the two observers are carried in cockpits in the heels of the two hulls, but in later versions, developed for commercial purposes, the interior of the two hulls are fitted up for passenger-carrying purposes, and in the machine in question accommodation for the two engineers and wireless operator is made in the two hulls.

The engines are a recent development of the Isotta-Fraschini Co., and in prolonged tests have given extremely satisfactory results.

One of the objects of this flight is to demonstrate the possibilities of this type of aircraft, which has been selected for use on one or two of the recently-projected Italian air lines in the Mediterranean.

No escort vessels will be employed, but an elaborate system of continuous wireless communication with steamers and land stations has been arranged.

On Nov. 2, as has already been reported, Commandante Casagrande, accompanied by Commandante Ranucci, a mechanic, and two wireless operators, left Genoa at 11.00 hours.

At 15.40 hours he arrived at Barcelona. He resumed his flight later to Gibraltar, but failed to arrive according to schedule, so that it is assumed that he was forced down owing to engine trouble.

Air Ambulances in Morocco.

A system of evacuating sick and wounded troops by aeroplane ambulances has been organised by the French Staff in connection with the operations in Morocco.

In spite of the limited supply of machines and pilots available for this work, about 300 cases a month are now being transported by air from the front line to the base.

The machines used for this work are adapted from the standard Breguet two-seater fighter, the Hanriot Scout and the Goliath long-distance bomber used by the French Naval Air Service.

Aeroplane ambulance stations have been formed at Ouezzan, Fez and Taza, near the three base hospitals.

It will be remembered that in the course of the British operations in Kurdistan in April, 1923, two hundred sick were evacuated from Koi Sanjak to Baghdad in R.A.F. machines whereby a number of lives were saved.

An even earlier instance of the use of aircraft for this purpose was the employment of a modified D.H.9 by the R.A.F. Medical Service in the Somaliland Campaign in 1919-20, of which it was said in the official report: "This campaign has demonstrated the efficiency of the aeroplane as an ambulance."

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Safetex Glass Ltd.—Private Co. Registered Oct. 26. Capital, £10,50 in 10,000 ordinary shares of £1 and 10,000 founders' shares of 1s Objects: To acquire the business of manufacturers of and dealers in non-splinterable glass carried on by "Contacto Ltd.," of Cranmer Road, Brixton, together with the trade mark "Safetex" and patents Nos. 237179 and 237379, entitled "Improvements in Reinforced Glass," together with patent rights for the U.S.A. and Canada, and to adopt an agreement with the said old company and H. W. Edmonds, the liquidator thereof.

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PERSONAL NOTICES.

Death.

MITCHELL.—On Nov. 1, suddenly, at Halton, Bucks, Leslie, daughter of Group Captain and Mrs. Mitchell, aged nine months.

Forthcoming Marriage.

WEEDON—LAWRENSON.—The engagement is announced between Flg. Off. Colin Winterbotham Weedon, Royal Air Force, younger son of the late H. W. Weedon, Esq., of Durban, and Mrs. A. C. Drury of Cambridge, and Gladys Frances Marian, elder daughter of Colonel T. G. P. Lawrenson, officiating Inspecting Officer of Military Lands and Cantonments, Army Department, Government of India, and Mrs. Lawrenson.

Marriage.

BELL—NEW.—On Nov. 4, at St. Augustin's Church, Bournemouth, Flt. Lt. J. Ross Bell, D.F.C., son of Mrs. Bell, and the late Dr. Frank Oliphant Bell, of Wareham, to Constance, daughter of Mr. and Mrs. H. G. New, of Bournemouth.



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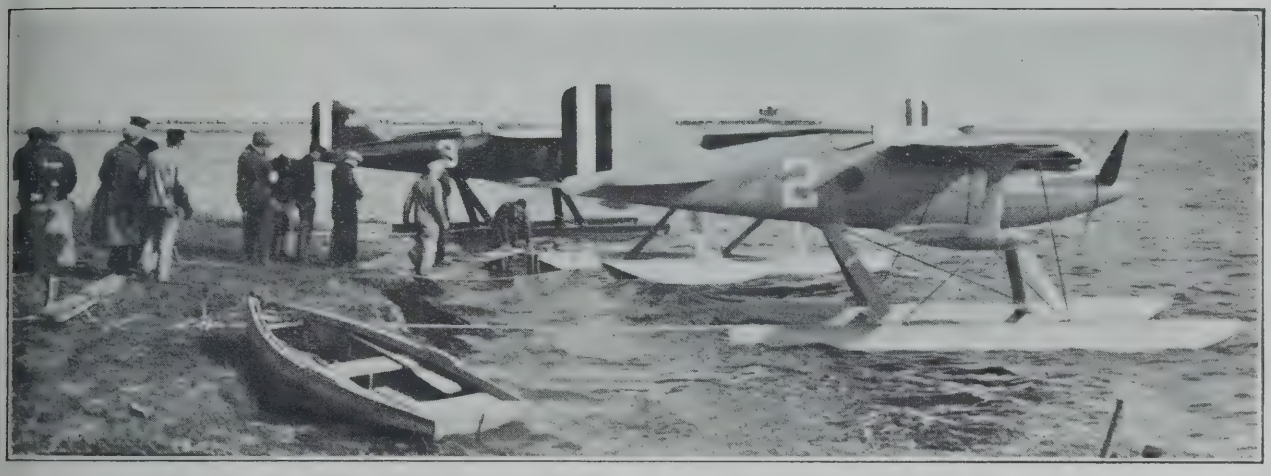
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Edited by C. G. Grey

Vol. XXIX. No. 21. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"BY THE WATERS OF BABYLON"



"SEND OUT THE ARMY AND THE NAVY."—In the picture one of the U.S. Navy (nearest) and the winning Army Curtiss R.3.C.2 machines are seen by the waters of Chesapeake Bay prior to the Schneider Trophy Contest. Bay Shore Park pier can be seen in the background. The Waters of Chesapeake Bay will always be remembered by the British Aircraft Industry as the "Waters of Babylon," beside which in spirit we have all sat down and wept because the Curtiss Company has promoted the building of racing aircraft to an exact science while we are still experimenting in the dark, and because the Americans have discovered that machines and personnel must be operated as a team instead of being separate entities.

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An adjustable Tail Plane for dual control is fitted. Centre Section Plane and Wing Roots allow a much greater forward and upward vision for both pilot and pupil. New shape ailerons lighten and harmonize the lateral control with the elevator and rudder controls.

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ON PUNCTUALITY AND PROGRESS.

Procrastination may be the thief of time as the proverb ells us, but when procrastination has become a habit in ny particular profession or walk of life punctuality may very ell become a vice and one's virtues, like one's sins, may ecoil on one's own head. Presumably it was the uncertain abits of early aeroplanes and engines which first made rocrastination and unpunctuality a habit among those who o up to the air in ships, as an American might say. And though in these days aeroplanes are generally ready to ke the air at a moment's notice and aero-engines as a rule art amiably without insisting on a complete rodeo per-rmance, no reasonable person who has had much to do ith aviation expects any self-respecting aviator to start at s advertised time.

Of course punctuality is desirable and time is money. Which why in the interests of Civil Aviation this paper has from me to time japed gently with Imperial Airways Ltd. about eeping their passengers waiting to start. Since that time ir Imperial air liners have taken to starting with at any te the punctuality of a cross-Channel steamboat if not ith the infallibility of a main line railway train.

This virtue of punctuality seems to be spreading. Only ie other day two prominent members of the Lancashire ero Club complained sadly that, allowing as usual for pilots ing unready to start, they had been done out of quite a lot flying at Woodford Aerodrome by arriving themselves an our or so late for their appointment, because the pilot structors were already in the air when they arrived.

Somewhat similarly on Thursday last, November 12, when ie was bidden by the de Havilland Company to come to tag Lane at 10.30 hours to see Mr. Alan J. Cobham dis-rting himself in the D.H.50 with which he proposes to urney to South Africa one imagined that if one arrived 11.00 hours one would be nicely in time to wring Mr. obham warmly by the hand and to listen to a few words of isdom from him while his machine was being hauled out of ie shed. But this confounded punctuality business seems to ave spread to North London also, and thus as the Editorial Talbot argued its way through tramcars and motor lorries in the vicinity of the vast area once occupied by the late lamented Aircraft Manufacturing Company at Hendon one saw Mr. Cobham's dark blue and silver aeroplane gyrating gaily a couple of thousand feet up in the air somewhere in the direction of Elstree.

However by the time one arrived on the aerodrome Mr. Cobham had descended, mentally and materially, to earth again and one had an opportunity of inspecting the machine. Of course, what with battalions of the storm troops of the daily Press and batteries of cameras and whole fortresses of kinema artillery, one had very little opportunity of conversation with Mr. Cobham. But one did manage to learn something from him and others about the machine.

The African Aircraft.

In essence it is the same as the D.H.50. on which he flew to Rangoon and back with Sir Sefton Brancker. In place of the trusty old 240 h.p. Puma engine for which the machine was originally designed, making it one of the most eyeable of aircraft, a 385 h.p. Jaguar engine has been pre-fixed to the nose of the machine and the fuselage has been rounded off into the back of the engine, which projects in front of it without any cowling and looks more like a prize chrysanthemum or an enterprising porcupine than ever.

Presumably the idea of abolishing cowling is to give the engine every possible opportunity of keeping cool in the Equatorial regions of Africa. And possibly also cowling is omitted so as to make Mr. Elliott's task, as engineer, a little bit easier when doing minor adjustments to valve-tappets and push-rods and sparking-plugs and things.

The extra 145 h.p. certainly seems to justify its existence. Mr. Walker, the technical chief of the de Havilland Company, said that the speed of the machine is exactly what it ought to be when taking the aerodynamic characteristics of the aerofoils into calculation and stepping up the performance of the machine on paper from 240 h.p. to 385 h.p. Anyhow it is ten miles an hour faster, with a cabin big enough for four people and the pilot's cockpit



PARTED.—Mr. Alan J. Cobham talking to Sir Sefton Brancker at Stag Lane on the subject of the flight to the Cape. The details of the cabin, pilot's seat, etc., of the De Havilland 50.J can be seen plainly in the sketches which appear in subsequent pages.

aft and a spare airscrew packed underneath the fuselage, than was a two-seater fighter with the same engine designed according to the specification of the Air Ministry's experts. And later in the day when the Powers of the Press had departed and one asked Mr. Cobham to fly low so that one could get a fair chance of a snapshot of the machine in the air, he replied that it was impossible to make the machine fly low because as soon as it got off the ground it went up like a rocket. Also he said that it handled very easily while in the air. And he demonstrated that it could be put down on the ground at a very low speed.

Mr. Elliott, who is naturally concerned with the internal economy of the machine, as he will have to travel in it, says that the noise inside the cabin is a little worse than it was with the Puma, but not so bad as to be inconvenient. And he seems to be just as pleased with the machine as a whole as he was when he engineered it to Rangoon and back. After all, handsome is as handsome does, and even though the machine may not be as pretty as it was with the Puma nobody will grumble about its looks if it does the journey.

The London-Cape Town Scheme.

The London to Cape Town flight presumably originated in the fertile brain of Mr. Alan J. Cobham. One of Mr. Cobham's best friends once described him as being the World's leading commercial aviator, with the accent on the commercial. By this Mr. Cobham's friends, among whom one hopes one has the privilege of counting oneself, do not mean that he is out primarily for his own commercial advantage but that waking or sleeping Mr. Cobham's mind is everlastingly working on the problems of Commercial Aviation as differentiated from Militant Aviation. Whenever Mr. Cobham looks at an aeroplane or thinks of flying his first thought is "What is its commercial value to aviation?"

From time to time this paper has indulged in a little jesting, of the type commonly called leg-pulling, apparently at Mr. Cobham's expense, but actually at the expense of the newspaper people who, thanks largely to Mr. Cobham's habit of doing things as well as talking about them, have come to regard anything about him as being what Fleet Street calls "a good story." And one must say that Mr. Cobham has been very amiable about having his leg pulled. Perhaps he is like another prominent personality in aviation who wrote recently that he did not in the least mind having his leg pulled so long as the pulling left him a little taller at the finish.

And, be it understood, wholesale advertisement of his big flights has been absolutely essential to Mr. Cobham for the good and sufficient reason that, in the absence of any entirely altruistic aeronautical philanthropist, the expenses of his flights have had to be found by making them a species of hoarding on which to advertise everything which has contributed towards his journeys. Naturally the names of the machine and its engine are advertised by the performance and it is only right and just that the petrol which he uses and the dope with which his machine is treated and the sparking plugs which made the engine work and everything else should be equally well advertised.

Accessories to the Fact.

On this particular occasion most of the accessories during the flight have had their names painted neatly but unmistakably on the side of the machine itself, so that wherever he alights everybody may see what and who have participated in the project. In fact one onlooker, regarding the machine at Stag Lane, remarked in mild surprise, "They have left out the names of his fountain pen and his tooth paste." Naturally commercial firms cannot afford to do good by stealth so all



THE CREW.—(Left to right) Mr. Alan Cobham (pilot), Mr. Emmott (cinematographer) and Mr. Elliott (engineer). Mr. Elliott, it should be noted, is giving a lifelike imitation of a Teddy Bear.

those which are helping the London-Cape Town flight deserve all the publicity they can get. So here goes:—

The aeroplane, as already mentioned, is a D.H.50. The engine is a Jaguar. The petrol is B.P. The distribution of fuel and spare equipment has been undertaken by Pickfords Ltd. The lubricating oil has been supplied and is being delivered to every landing ground along the route by C. C. Wakefield Ltd. The magnetos are by the British Thomson-Houston Co. Ltd. The tyres are Palmers. The sparking plugs are K.L.G.s. The ball bearings are Hoffmans. The timber in the machine is Mallinsons. The dope is Titanine-Emaillite. The instruments are S. Smith and Sons. The steel tubing in the machine is Accles and Pollock. The bracing wires are Bruntons. The turnbuckles and small fittings, screws and so forth are from Brown Brothers.

The other firms whose products enter into the composition of the machine are J. Stone and Co. Ltd., Pinchin Johnson and Co. Ltd., Earle, Bourne and Co. Ltd., the Triplex Safety Glass Co. Ltd., and Henry Hughes and Sons Ltd.

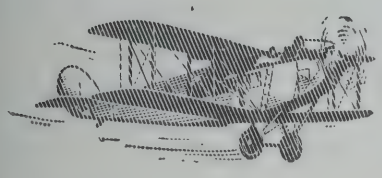
Finally one may say that the journey is to a large extent a survey flight made on behalf of Imperial Airways Ltd. with the ultimate idea of running a regular air line to Cape Town.

With the idea of recording some part of the survey made B. W. G. Emmott of the Gaumont Company will travel with Mr. Cobham and Mr. Elliott and will take photographs and kinema films. Personally one mistrusts the semi-official statement that Mr. Emmott "will make a film of the whole

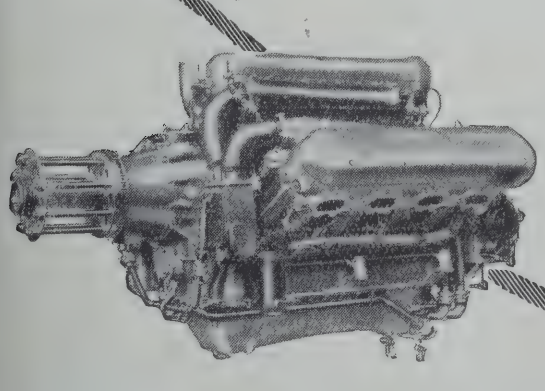


SOUTHWARD BOUND.—The De Havilland 50.J at Stag Lane taken a day or two before the start for the Cape.

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The Napier 'Lion' engine has run *742* hours of testing under British Air Ministry official type test conditions.

There is no more strenuous test than that devised by the British Air Ministry.

Major Zanni, the Argentine Airman, used a Napier engine in his flight from Amsterdam to Tokio (10,000 miles) in 22 days' flying.

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flight for public exhibition." As the distance is some 6,000 miles one imagines that a film of the whole flight would be somewhat lengthy and that Mr. Emmott might get rather tired of winding his little handle.

One finds that one has omitted to mention that invaluable assistance has been received from the Air Ministry who have made all the arrangements permitting the expedition to pass through foreign and Colonial territories and that the data collected by the Directorate of Civil Aviation provided Mr. Cobham with full information on the topographical and meteorological conditions which he will meet. But apparently the Air Ministry has not put up any money to help to pay for the flight. Nor have any of the various millionaires whose names figure so prominently at social functions connected with Aviation put their hands in their pockets to help.

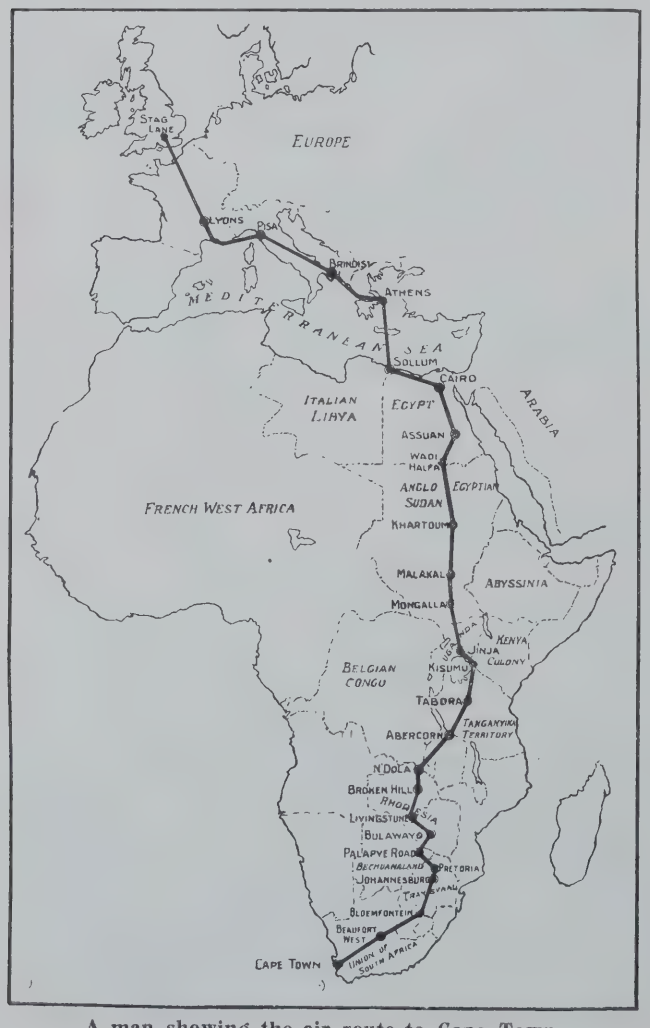
And that, said John, is that. One hopes that everybody will be pleased.

Activities at Stag Lane.

While Mr. Cobham was giving his demonstration one had a fair opportunity of watching the activities at Stag Lane, which seems to be one of the most active aerodromes in England, not excepting the Flying Training Schools of the R.A.F. Besides the test flying of the de Havilland Company's own machines there is also the R.A.F. Reserve School where officers of the Reserve are given practice flying on machines supplied and operated by the de Havilland Co. And there is the London Aeroplane Club, for which the de Havilland Co. are also more or less responsible. And there is the de Havilland Co.'s own civilian school, run in conjunction with the Reserve School.

The machines used at the R.A.F. Reserve School are Moths, an Avro with a Renault engine and a number of D.H.9s with Pumas. Three or four of these were in the air, off and on, continually while one was at Stag Lane, some with Reserve pilots flying alone and some with the School pilots giving instruction with dual control.

The two Moths of the London Aeroplane Club were hard at work the whole morning and the way they hopped off the ground against quite a moderate breeze showed that with a fair load of petrol and passengers of normal size they have just about the performance of any normal training machine. Judging by the number of flights they did Messrs. Sparks and Witcombe, the instructors at the London Aeroplane Club, do certainly earn their keep.



A map showing the air route to Cape Town.



IN THE AIR.—Mr. Cobham testing the De Havilland 50.J.

The London Aeroplane Club has a little shed of its own at the South-East corner of the Aerodrome just big enough to house its two Moths, and to provide a little office for the staff. When the Moths are out on the aerodrome the shed makes quite a nice sort of bungalow sitting-room for the members who are waiting for flights.

The machines of the Reserve School, together with the de Havilland Company's own Hire Service machines and their School machines, are housed to the West of the de Havilland Works in three large hangars which are officially known as the "running sheds" just as if they were part of a perfectly good railway system. One rather likes this title. It gives an air of respectable solidity to the proceedings.

Secrecy and Invisibility.

There was one machine which had apparently taken the air before any of the visitors arrived and remained cruising around at a height of some 7,000 or 8,000 feet where its details were safely invisible. Local rumour had it that this was a brand new de Havilland of the most hush-hush type and concealed by all the powers of the Air Ministry Secret List. Quite unofficially, and not from anybody connected with the de Havilland Company, one was told that it was another of the many efforts which have been made to improve upon the old D.H.9a., this time with the help of a radial engine.

So far as one can gather from the designers of the Aircraft Industry, who, not having anything to do with the commercial departments of the various firms, are perhaps a little more apt to speak their minds than are the members of the commercial staffs, there seems to be very little chance of much improvement on the performance of the 9a so long as the newer types are lumbered up with paraphernalia imposed upon them by the Air Ministry technical experts. Seemingly the only chance the R.A.F. has of getting something better than the 9a is for the Operations Branch of the Air Ministry to cut the technical experts clean out and tell the Trade that what they want is a machine to carry two people with given armament and to contain a supply of petrol which will carry them over a given distance in the shortest possible time. Then the firms will have to be given a perfectly free hand to design their machines without any more official interference.

However the machine to which one has referred did not descend while one was at Stag Lane, so one has no temptation to betray Air Ministry secrets in this particular instance.

Round The Works.

After the various aviators had landed for lunch one was taken round the de Havilland Works by Mr. St. Barbe and Mr. Hope. At the present moment the Works are chiefly busy on war machines. A number of the evergreen 9as are being reconditioned and a certain number of brand new 9as are being built right through from rudder-post to airscrew-boss.

In one building was an extraordinarily secret aeroplane which one was not allowed to inspect. It was all fenced off by impenetrable screens like a monument prior to unveiling. All one could gather about it was that it is a very promising effort in its own line.

Re-Conditioning.

The state in which some of the 9as arrive to be re-conditioned is quite entertaining. As Mr. St. Barbe remarked, the pieces are sent in a bucket. One mass of material, which was in fact the basis from which a machine was to be rebuilt, looked so like a scrap-heap that it recalled an old Ford story which is worth re-telling.

A certain good lady in the States had the corrugated iron verandah of her house carried away by one of those tornadoes which the late Sir Hiram Maxim in his scale of wind-speeds called a "Washoe Zephyr," and afterwards the tangled mass of iron posts and sheet metal was dumped in a corner of her garden and a wooden verandah was built in its sted. Not knowing what to do with the junk she asked the advice of a business friend, who said "Those automobile firms in Detroit will buy up any old metal and melt it down and pay you value for it, so why don't you send it along?

So the proprietor had the stuff loaded onto a freight car, checked to the Ford Company, the label bearing her name and



A Silhouette of the FAIREY "FOX" AEROPLANE.

The "Fox," which is being supplied in quantities to the Royal Air Force, stands at the forefront of aerial equipment to-day.

Its performance far surpasses that of any other aeroplane of its class throughout the world.

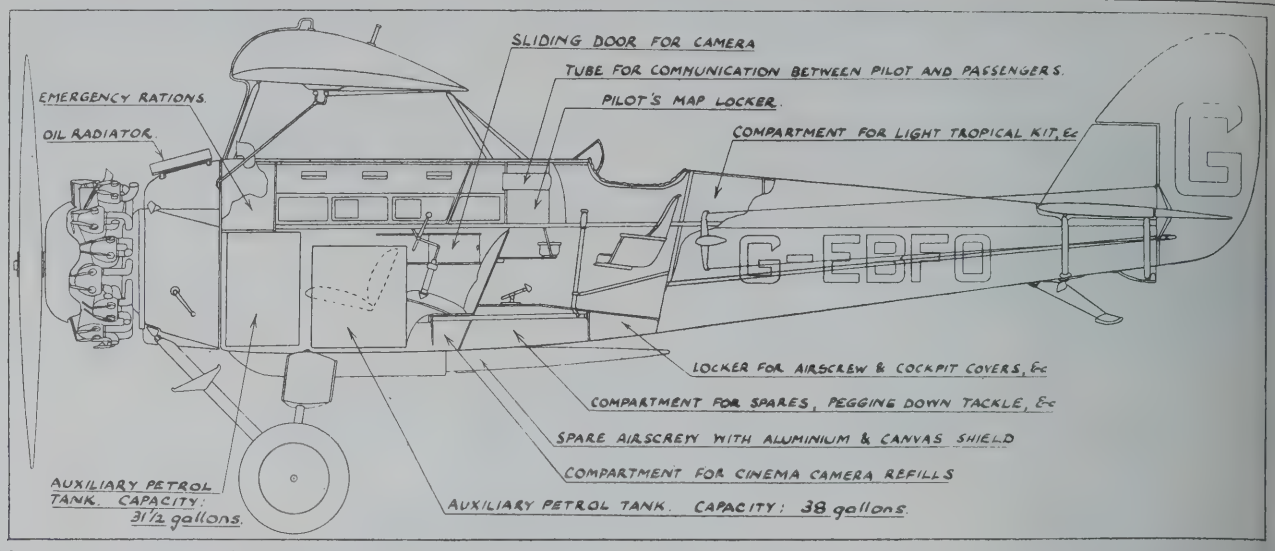
It is interesting to note that the Fairey "Fox" is fitted with the Fairey "Felix" D.12 Engine and with a Fairey-Reed Air-screw, both of which contribute largely towards the remarkable speed and efficiency obtained with this machine.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



address but no instructions, as she intended to write about it later. A few days afterwards there arrived from the Ford Company a polite letter saying: "Madam: Your automobile is in very poor shape. It will take at least three days to repair."

A trifle more than three days is needed to rebuild a 9a from the junk which arrives from the R.A.F. stations, but the resultant aeroplane is every bit as good as a new one. In fact by the time all necessary replacements have been made it generally is a complete new machine except perhaps for a few metal parts.

Continuity Again.

Apart from the reconditioning jobs the de Havilland Company apparently finds itself in very much the same position as the majority of other firms in the Aircraft Industry—that is to say, it is nearing the end of one contract and is waiting for fresh orders to be placed.

As one has mentioned when writing of other firms, this is one of the most difficult problems confronting both the Air Ministry and the Aircraft Industry. The Ministry wants to keep the Trade on a sound financial footing by supporting with its orders those firms which have proved their ability to do good work and to turn out designs which are worth reproducing. But what with the avoidable delays caused by the vagaries of the various departmental experts and the unavoidable delays which occur in passing the approval of contracts from one department to another there is bound to be a certain amount of hanging up of orders.

Such delays cause that unpleasant state of affairs when either the shops which deal with the raw material are standing idle while the finishing shops are completing an order or when the raw material shops are desperately busy while the finishing shops are idle. Meantime the reconditioning of 9as corresponds to what in any other business would be manufacturing for stock.

If only commercial aviation, including not only air line work but aerial survey, co-operative flying by the clubs and so forth, would develop there might be some possibility of keeping the best of the aircraft hands steadily at work.

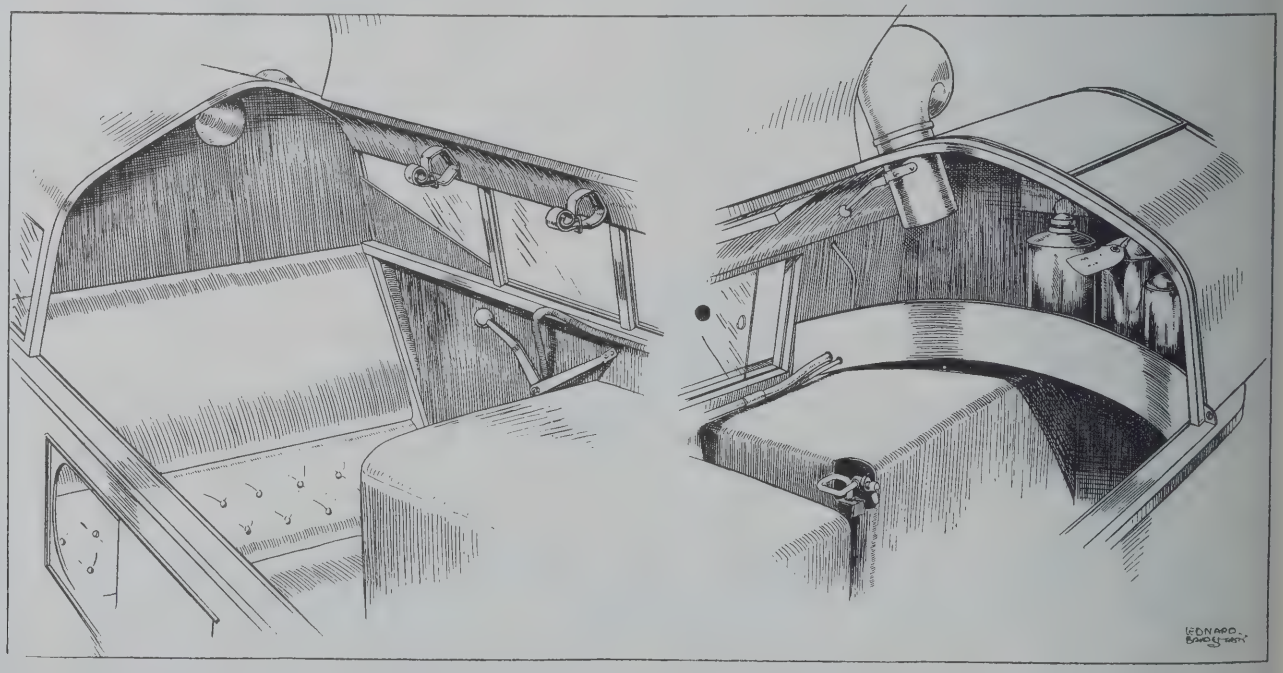
What Has Been Done.

No firm has done more for the development of Commercial Aviation than has the de Havilland Company. The following brief appreciation of the situation, written by Capt. W. H. Sayers for publication in another place, sets forth clearly what the firm has done in this direction:—

"The de Havilland Aircraft Co. Ltd. must be regarded as Britain's leading producers of civil aircraft. Capt. G. de Havilland, director and chief designer of the firm, is one of the very early pioneers of aviation in this country, and during the war D.H. aircraft established a reputation second to none for the all-round efficiency with which they fulfilled the functions for which they were designed.

"That since the end of the war the Air Ministry has apparently been less influenced by concern for the efficiency of new military aeroplane types than by a desire to keep private designers in a state of proper subjugation, has led to Capt. de Havilland finding a larger outlet for his genius in the commercial field, than in supplying the needs of the R.A.F.—to the very considerable gain of civilian aviation.

"The original London-Paris services of Air Travel and



THE CABIN OF THE D.H.50J.—On the left is seen the rear end of the cabin showing one of the two seats with the petrol hand-pump on the left, a portion of the rear auxiliary petrol tank, straps in the roof for securing rifle, the tube in the back wall communicating with the pilot's cockpit, and on the near side of the cabin a sliding opening for the cinema camera. The view looking at the front end shows the forward auxiliary petrol tank and portion of the rear tank, the shelf in front for emergency rations, the movable cabin ventilator and the sliding window, also for use of camera. The second seat, not shown in either drawing, is situated alongside the rear auxiliary petrol tank.

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(Machine in each of above events fitted with Napier Lion engine.)

Transport were carried on exclusively by de Havilland machines. Before even that, a Communication Squadron R.A.F. carried on an extensive service between London and Paris for the convenience of politicians and other eminences in connection with the Peace negotiations, using D.H.4s converted for passenger-carrying, and similar machines were used on the earliest civil passenger service.

"These were soon replaced by the D.H.16, the D.H.18, and the famous D.H.34, which is still probably the fastest and most efficient commercial aeroplane in regular and extensive service to-day. Owing to the lack of any settled policy concerning the development of the British air lines, a long interval has elapsed between the production of the D.H.34, and a further de Havilland design, for a large and powerful passenger-carrier. The D.H.54, which is now undergoing its tests, bids fair to take as pre-eminent a position in the near future as that occupied in the past by the 34.

"Complete figures for this machine's performance are not yet available, but it is safe to say that its range of speed and its climb—combined with the very high useful load per h.p. which it carries—will give rival designers of this type of aircraft a good deal to think about.

"It must not however be imagined that the interval between the D.H.34 and the D.H.54 represents a gap in the production of D.H. commercial types. There being little demand for the heavy type of commercial machine, the D.H. firm have given their attention to lighter types, suitable for work where traffic is less intense than that of the London-Paris lines. One need scarcely do more than mention the D.H.50 and 50a—which are the mainstays of the remarkably successful Australian Airways, and are in regular use on Imperial Airways Berlin service—the D.H.51, and the recently-produced D.H. Moth, to indicate that even to-day civil aviation presents a field wherein a really enterprising designer may find useful, and not unprofitable, work."

So far as air line machines are concerned the present fashion, which is likely to become the rule, that all air liners must have three or more engines, rather puts out of court such machines as the D.H.34 and 54. But it is well to remember that about the most efficient twin-engined aeroplanes ever built in this country were the D.H.3, the D.H.10, the D.H.10a and the D.H.11. One thing or another, the supply of engines among the others, prevented any of these twin-engined machines from becoming mass-production types during the War, but only the other day one of the most experienced pilots in this country told one that in his opinion the D.H.10 was the best aeroplane he had ever flown.

Therefore one hopes to see the de Havilland Company turned on by Air Ministry order to produce a big multiple-engined aeroplane. One fancies that if the talents of Capt. de Havilland and Mr. Walker were seriously directed towards that type of machine we should achieve another step forward in the progress of British Aviation.

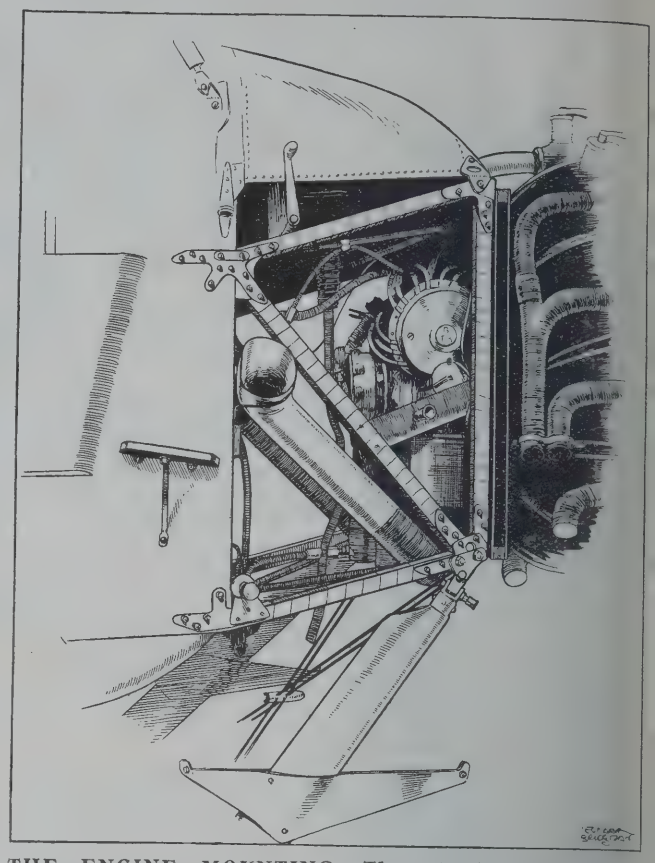
Health and Happiness.

The employees of the de Havilland Company may consider themselves fortunate even in these days of hygienic factories. The situation of the Works out at Stag Lane assures plenty of light and excellent fresh air, for the aerodrome is high above the usual fog level. The shops are all of modern construction, well ventilated and at the same time well heated.

Also, being far removed from what is erroneously called civilisation, the Works have their own canteen. The result is that the staff, instead of having to pay exorbitant prices for inferior food, as do we poor unfortunates who live right inside cities, get the finest of wholesome English fare at an absurdly low figure. One had the pleasure of lunching in the canteen after going round the Works and would like to compliment the firm's cook on his or her work. It is fully up to de Havilland standard.

Taking it all round the de Havilland firm worthily represents everything that is best in English Industry. Its workmanship is above reproach. One would rather trust one's life to an aeroplane guaranteed by the de Havilland Company on its own reputation than to one which had passed the most rigorous Government inspection. The firm's design department is always at work on new ideas, as is shown by the immense number of types for which the firm has produced designs even though some of them have not actually reached the stage of construction. The last machine actually to be built by the firm is, one believes, the D.H.60, and there are probably half-a-dozen later designs than that at present on the drawing board.

One hopes that the rate of production of new designs may continue. The enterprise which prompted Capt. de Havilland and Mr. Walker to strike out on their own account after the collapse of the Aircraft Manufacturing Company, and to start right from the bottom of the ladder in those old sheds of the late London and Provincial Aeroplane Company on Stag Lane Aerodrome, and has resulted in their producing such a number of new types since the outbreak of peace, certainly deserves success even if it cannot command it.—C. G. G.



THE ENGINE MOUNTING.—The standard Armstrong-Siddeley ring-mounting is carried on an ash framework of the shape shown. Other detail are the steps on the undercarriage leg and fuselage, the air-intake tubes, and the exhaust pipes that carry the exhaust fumes of the upper cylinders clear of the cabin windows and the camera slot.

LONDON TO SOUTH AFRICA.

In connection with the flight of Mr. Alan J. Cobham, who started from London for South Africa on Monday, it is interesting to note that the first flight to South Africa was accomplished five years ago. Starting on Feb. 4, 1920, Lt.-Col. Helperus A. Van Ryneveld, D.S.O., M.C., and Capt. C. J. Quentin Brand, D.S.O., M.C., D.F.C., flew from Brooklands to South Africa (Bulawayo, Rhodesia), in a Vickers Vimy with two Rolls-Royce Eagle water-cooled engines, the machine and engines being similar to those which successfully flew across the Atlantic in the previous year.

This flight was remarkable on account of the comparatively small preparation which it was possible to make in those early days. A mishap in landing at Wadi Halfa necessitated removing the engines into another similar aeroplane and restarting. Eventually the journey finished with a crash at Bulawayo. But it successfully accomplished the pioneer flight of 6,281 miles from England to South Africa, and the two pilots were duly knighted (K.B.E.) for their enterprise.

THE WAR IN SYRIA.

The Daily Express correspondent in Jerusalem, in a message dated Nov. 16, states :—

I understand that Lord Plumer, the High Commissioner in Palestine, has appointed Air Commodore Gerrard to the command of the British Forces in the Huleh area, near the Syrian boundary, where the gendarmerie under Major Beysher are stationed.

Mettullah, the Jewish colony on the Syria-Palestine frontier, has been reinforced on account of the Druse menace. The whole area has been declared a military zone, and is practically under martial law.

Peake Pasha, the British officer commanding the Transjordan forces [Transjordauia is under British mandate] has been ordered to check the Druse invasion on the Eastern side of the river.

Christians are fleeing from Jedeida, where the Druses in disguise carried out a raid on Saturday. Many arrived yesterday at Metullah, surrendering their arms and imploring British protection.

French airplanes bombed Judeida yesterday, the bombs falling within a mile of Metullah, terrorising the Jewish colonists.

Additional British troops have been rushed to Metullah, and British airplanes are reconnoitring the French side of the boundary, where the French have practically abandoned their posts.

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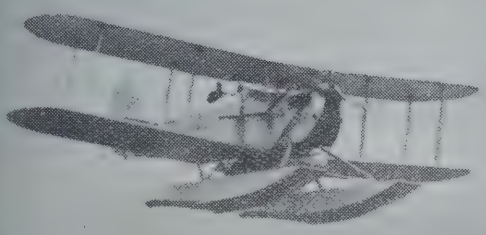
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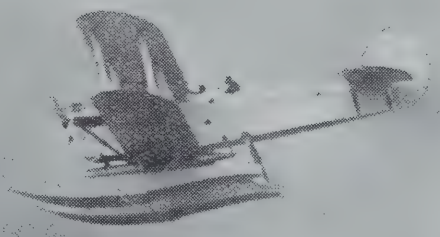
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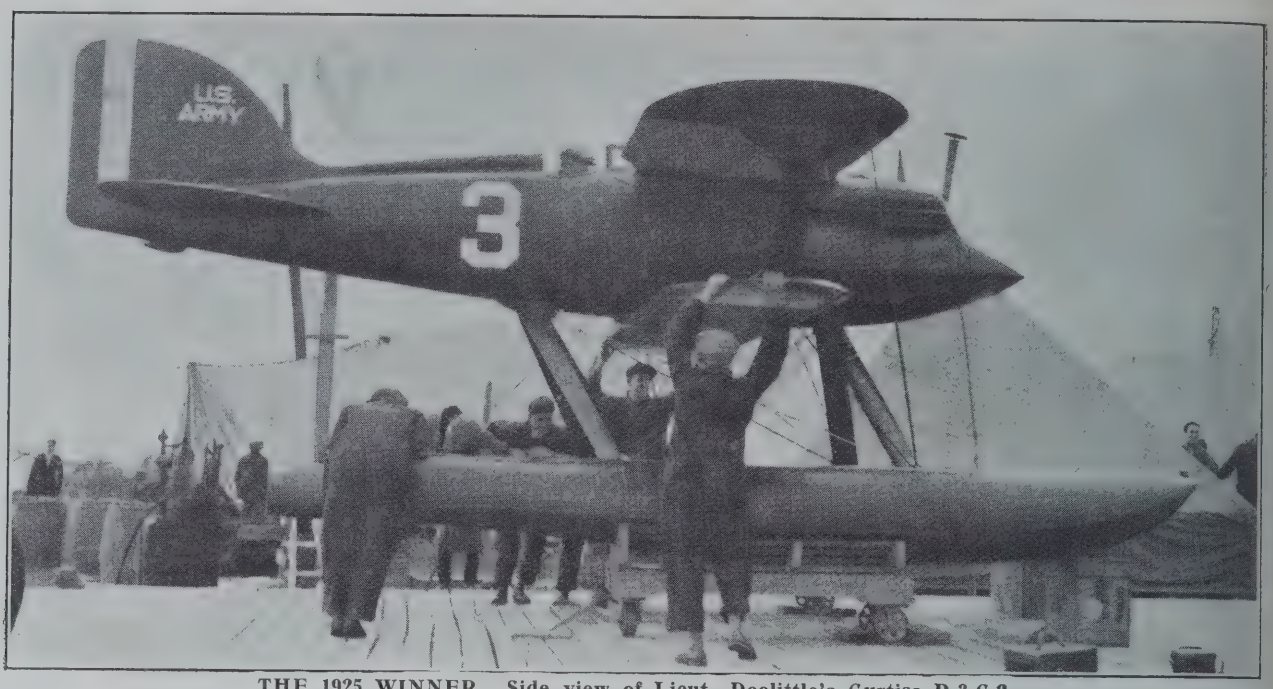




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THE 1926 SCHNEIDER TROPHY CONTEST.



THE 1925 WINNER.—Side view of Lieut. Doolittle's Curtiss R.3.C.2.

Up to now there is no news of the Air Ministry having placed any orders for racing seaplanes for next year's contest. The fact that they have not yet placed definite orders shows that, though they may realise their duty towards British Aviation, they are as yet incapable of doing it.

One met the head of a certain aircraft firm recently and he was quite petulant with one for suggesting that there is need for hustle in starting next year's machine. One imagines that if that particular firm builds a machine for next year it will not be completed in time for thorough tests and modifications. Then we shall be regaled with accounts of the wonderful co-operation between the Air Ministry and the aircraft firms with speeches and banquets and Secret Lists, and the final result will be that we shall obtain second place in the race, providing that all except one or two of the foreign entrants fail to complete the course. And the result of that will be that we shall lose still more of our overseas trade.

The desire of various aircraft firms to see other firms than themselves building Schneider Racers rather reminds one of the song which the late Mr. Alfred Lester used to sing during the war, the chorus of which ran as follows :—

Send out the Army and the Navy
Send out the rank and file
Send out the brave old Territorials,
They'll face the danger with a smile.
Send out the boys of the old brigade
Who made old England free,
Send out my mother
My sisters and my brother,
But for Gawd's sake don't send me.

The Team arrived home on board the *Minnewaska* on Monday of this week. It is hoped that a conference will at once take place among the team, the S.B.A.C., and the Air Ministry so that an immediate decision may be made to put the best we have into preparing machines so that next year we can actually send to the States a team of three well-tried machines with three equally well-tried reserves and a team of six fully-trained pilots. Nothing short of this will be good enough. The machines and pilots must all be able to fly and corner sharply at about 270 m.p.h.

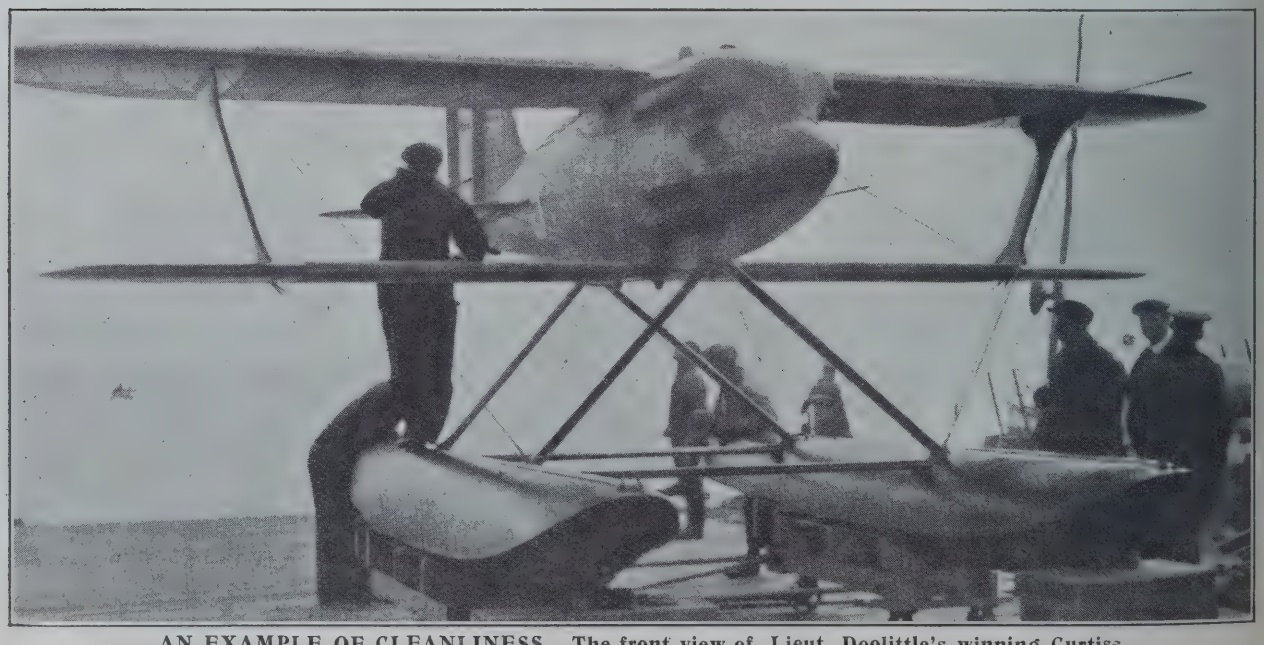
And finally to the Air Ministry and the Schneider Committee, etc., one would say, "Do not be silly and secret, but if you must be, say what you want, and do not leave people to guess your innermost wishes for darkness and composure."—G. D.

THE AUTO-GIRO.

Two new types of Auto-Giro aeroplane are to be built in this country to Air Ministry order by one of the pioneer aircraft firms of the country. It is rumoured that they will have Bristol Jupiter engines.

In addition, two machines with 300 h.p. Hispano-Suiza engines are being built in Spain. These machines Senor de la Cierva expects will have about the performance of a Bristol Fighter.

Two or three other machines on the Auto-Giro principle are also to be built in England. One is a conversion of a small commercial type and later on a bigger commercial machine will be tried.



AN EXAMPLE OF CLEANLINESS.—The front view of Lieut. Doolittle's winning Curtiss.

BIC
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The

SAVAGE-BRAMSON ANTI-STALL GEAR

PATENTS APPLIED FOR THROUGHOUT THE WORLD

THE proportion of fatal accidents caused, or accompanied, by involuntary stalling is approximately 80 per cent. Conversely, crashes which are not accompanied by stalling, are very rarely fatal; consequently, any device which is capable of preventing involuntary stalling in all circumstances will either eliminate, or render non-fatal, a proportion of accidents of the above-mentioned order.

The Savage-Bramson Anti-Stall Gear achieves this object. Its function is to transmit a stimulus to the pilot through his sense of touch of a kind, and in a sense which makes a stall impossible otherwise than as an act of volition on his part. Yet at no time does it interfere with the pilot's complete control of his aeroplane.

This gear is being supplied to the British Air Ministry, and to Foreign Governments.

Full technical particulars on application to :—

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S.B.A.C. THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS

THE ROYAL AIR FORCE.

The London Gazette

Nov. 10.

General Duties Branch.—Flt. Cadet A. W. A. Ricks having successfully passed through the R.A.F. Cadet College, Cranwell, is granted a perm. comn. as a Plt. Off. with effect from and with seniority of Oct. 18.

The following Plt. Offs. are promoted to the rank of Flg. Off.:—F. W. C. G. Tussaud (June 15); V. W. Soltan (Sept. 14); A. E. P. Smith (Sept. 14); J. E. Clayton (Oct. 14); A. L. Macmillan (Oct. 15).

Plt. Off. on probation R. J. Stevens is confirmed in rank (Oct. 22); Flt. Lt. R. S. Capon is placed on the Retired List at his own request (Nov. 8).

The following are transferred to the Reserve:—Class A.—Flg. Off. H. W. Beck (Nov. 8). Class B.—Flt. Lt. F. C. Wilkinson (Nov. 11); Flt. Lt. J. S. Holloway (Capt., Dorset Regt.) relinquishes his temp. comn. on retirement from the Army (Nov. 6); Plt. Off. H. R. Gillespie is removed from the service (Nov. 11).

Stores Branch.—Flt. Lt. A. Latimer is granted a perm. comn. in the rank stated (Nov. 11); Sq. Ldr. J. H. Wilford is placed on the Retired List and is granted the rank of Wing Cdr. (Nov. 7).

Accountant Branch.—Flg. Off. E. F. Colman is cashiered by sentence of General Court-Martial (Oct. 26).

Medical Branch.—Flt. Lt. T. J. Thomas, M.B., is promoted to the rank of Sq. Ldr. (Nov. 9); Flt. Lt. (hon. Sq. Ldr.) E. A. Aldridge, M.C., B.A., relinquishes his temp. comn. on ceasing to be employed (Oct. 24); Flg. Off. H. J. Henderson (temp. Lt., Dental Surgeon, General List, Army), relinquishes his temp. comn on ceasing to be employed (Oct. 26).

Reserve of Air Force Officers.—The following are granted comns. as Plt. Offs. on probation, General Duties Branch:—Class A.—R. N. Bullock, H. W. Knott (Oct. 10). Class AA.—L. W. V. Oppen, J. F. O'R. Coleman (Oct. 19); D. S. Purnell (Oct. 26).

Plt. Off. (hon. Flg. Off.) C. H. L. Needham is confirmed in his rank and promoted to the rank of Flg. Off., with effect from Oct. 10, and with seniority of Apr. 10.

The following are confirmed in rank:—Flg. Offs.—R. W. Jones (July 9); H. A. Buss, O.B.E., D.S.C., S. A. Packman (Maj., R.A.R.O.) (Nov. 5). Flt. Offs.—S. Barker, M. H. Edmunds, F. James, G. P. MacDonald, A. C. Robertson, W. A. R. Speight (Nov. 5).

Plt. Off. W. F. A. Snell is transferred from Class C to Class A (Nov. 1); Flg. Off. L. D. G. Morrison is transferred from Class B to Class C (Nov. 4); Flg. Off. J. V. Roberts is transferred from Class A. to Class C (Nov. 10).

Appointments.

Week ending Nov. 17.

General Duties Branch.—Wing Commander M. Spicer, to R.A.F Depot pending disposal on transfer to Home Establishment, 30/10.

Flight Lieutenants P. E. Maitland, A.F.C., to No. 2 F.T.S., Digby, 24/11. M. Ballard, to No. 70 Sqdn., Iraq, 22/10. C. Crawford, to R.A.F. Depot on transfer to Home Establishment, 17/10. C. Crawford, to No. 10 Group H.Q., Lee-on-Solent, 23/11.

Pilot Officer A. H. W. J. Cocks, to No. 99 Sqdn., Bircham Newton, 16/11.

Stores Branch.—Flight Lieutenant T. E. Drowley, to Stores Depot, Iraq, instead of to Station Commandant, Iraq, as previously notified. 22/9

Accountant Branch.—Flying Officer J. H. S. Richards, to No. 32 Sqdn., Kenley, 16/11.

The Fleet Air Arm.

The following appointments were made by the Admiralty on Nov. 10:—

Lieuts., R.N. (Flg. Offs., R.A.F.).—W. M. Healing and E. C. F. Price, to *Columbine*, and for No. 442 Flight; R. J. Berry, to *Furious*, and for No. 467 Flight; A. P. Colthurst and J. E. Vallance, to *Furious*, and for No. 462 Flight (Nov. 17).

The following appointments were made by the Admiralty on Nov. 12:—

Lieuts. (Flg. Offs., R.A.F.).—L. C. Sharman, R. C. Allen and G. H. Birley, to *Columbine*, and for No. 405 Flight; T. H. Villiers, to *Furious*, and for No. 404 Flight; T. O. Bulteel and R. A. Aldridge, to *Columbine*, and for No. 406 Flight (Nov. 14).

Armistice Day.

Immediately after attending the ceremony at the Cenotaph, Air Chief Marshal Sir Hugh Trenchard proceeded to the Victoria Embankment, where he placed a wreath at the base of the Royal Air Force war memorial, on behalf of the executive committee of the Royal Air Force Memorial Fund.

The ceremony was quite informal and very brief. The wreath was made in the shape of the R.A.F. wings.

Many other wreaths were placed on the memorial, among them being one from the Government and People of the Commonwealth of Australia, and one from a few comrades in the R.A.F.

Among those present at the ceremony were: Lady Trenchard, Air Marshal Sir John and Lady Salmond, Air Vice-Marshal Sir Geoffrey and Lady Salmond, Lady Henderson, Sir Philip Sassoon, Air Vice-Marshal F. R. Scarlett, the Chaplain-in-Chief, R.A.F., and Lieut.-Colonel Moore Brabazon, M.P.

The Cairo-Kano Flight.

The expedition under Sq. Ldr. A. Coningham, D.S.O., M.C., D.F.C., R.A.F., which left Helwan, on Oct. 27, to fly to Kano and back, left Kano on its return journey at 06.30 hours on Nov. 12. The party arrived at Geneina at dusk on Nov. 14, having refuelled at Abeshr (French Equatorial Africa).

On Nov. 16 they left Geneina at 10.30 hours and landed at El Obeid, Kordofau on the same day.

They reached Khartoum on Nov. 17, and are expected to arrive at Helwan on Nov. 20.

H.M.S. Ark Royal.

The Admiralty have given instructions for the aircraft-carrier *Ark Royal*, Commander C. F. J. Wood, serving on the Nore Reserve Fleet at Sheerness, to be recommissioned on Nov. 17 as an independent command, to relieve the *Blenheim*, Capt. B. W. Barrow, as depôt ship of the Central Reserve of Minesweepers at Sheerness. The present crew of the *Blenheim* is to turn over to the *Ark Royal* such adjustments as are necessary to comply with the proposed complement of the *Ark Royal* being made after transfer.

H.M.S. Ark Royal (7,080 tons), was originally laid down as a commercial oil tanker but was purchased by the Admiralty in 1914, during construction, and converted to an aircraft carrier. Her original design remained practically unaltered.

In common with oil tankers her propelling machinery was situated right aft, the forward part of the ship being given over to tank space. On conversion the tank space was equipped for the storage of seaplanes and two dockyard-type steam-cranes were installed amidships, to lift seaplanes out of the hold and deposit them over the side. There was no accommodation on deck for flying-off or alighting. She therefore fulfilled the sole purpose of a carrier of seaplanes.

Her low speed, 11 knots, made her useless for operations with the fleet, but she did useful service as a seaplane mother-ship, in the Dardanelles campaign and other operations in the Eastern Mediterranean. The *Ark Royal* was the first ship to be commissioned as an aircraft-carrier, although the old cruiser *Hermes* had been used for transporting aircraft both before and during the early months of the War 1914-18.

R.N. Observer's Duties.

The Times of Nov. 11 states:—

A new Order in Council provides that, as the title "Aerial Gunner and Assistant Observer" incompletely describes the duties of the telegraphist ratings of the Royal Navy who, under Order in Council of Oct. 11, 1921, have been employed in aircraft, since their duties as assistants to the naval observer are confined to the sending and receipt of wireless signals and messages, they are to be known in future as "Telegraphist aerial gunners." Apart from the operation of the W/T apparatus in the aircraft, these ratings are in no respects qualified to replace or understudy the naval observer.

Rugby Football Fixtures.

The R.A.F. Rugby Union Handbook for 1925-26 gives the following R.A.F. fixtures for the season:—

Nov. 30, R.A.F. Trial at Spittlegate.

Dec. 1, R.A.F. Trial at Old Sarum; Dec. 2, R.A.F. Cadet College v. R.M.C., Sandhurst, at Camberley; Dec. 12, R.A.F. Cadet College v. R.M.A., Woolwich, at Cranwell; Dec. 21, R.A.F. Trial, Probables v. Possibles, at Uxbridge.

Jan. 6, R.A.F. v. Guy's Hospital, at Honor Oak Park; Jan. 16, R.A.F. v. Leicester, at Leicester; Jan. 20, R.A.F. v. Cambridge University at Cambridge; Jan. 23, R.A.F. v. Bristol, at Bristol.

Feb. 6, R.A.F. v. Bath, at Bath; Feb. 13, R.A.F. v. R.N., at Twickenham.

Mar. 3, R.A.F. v. Oxford University, at Oxford; Mar. 18, R.A.F. v. Gloucester, at Gloucester; Mar. 19, Final of R.A.F. Cup Competition, at Uxbridge; Mar. 27, R.A.F. v. Army, at Twickenham.

Association Football.

R.A.F. v. Southampton:—This game, played at Southampton on Nov. 14, resulted in a win for the R.A.F. by five goals to three. The match was a very fast one, and the Air Force team, which has been somewhat reorganised, played an excellent game, the combination and passing of the forwards being particularly good.

In the first half the R.A.F. opened the scoring, Kirk heading a very good goal from a well-directed centre from Sambrook. Fifteen minutes later Southampton equalised. Just before half-time, as the result of good passing by the forwards, Bishop headed a goal for the R.A.F.

Owing to a slight fog the game was played without a half-time interval. Soon after the restart Kirk scored another goal after a hard shot from Bishop. Southampton then scored again after several clever saves by Hedley. Towards the end of the game the R.A.F. scored twice more (Kirk and Smith), and Southampton once (Henderson). The R.A.F. team were:—

Flg. Off. Hadley, AC. Owens, F-S. Fretwell, Cpl. Pennicott, Flg. Off. Dickson, L-AC. Underhill, AC. Sambrook, AC. Bishop, AC. Kirk, AC. Smith and AC. Mason.

GENOA—BUENOS AIRES.

On Nov. 15, Commandante Casagrande, who is attempting to fly from Genoa to Buenos Aires on a Savoia 55 monoplane flying boat, arrived at Gibraltar from Barcelona, thus completing the first stage of his flight.



AEROPLANES:

TRAINING:— AVRO TYPE, 504K.
(Engines: 120/140 h.p. A.D.C. "Airdisco," 100 h.p. Mono, 110 h.p. Le Rhone, 130 h.p. Clerget, etc., etc.)

FIGHTING:— MARTINSYDE A.D.C.1.
(Engine: 380/420 h.p. Siddeley "Jaguar.")
MARTINSYDE F4.
(Engine: 300 h.p. Hispano.)

2 SEATER:— D.H.9.
(Engine: 240 h.p. Siddeley "Puma.")

SEAPLANE:— D.H.9 SEAPLANE.
(Engine: 240 h.p. Siddeley "Puma.")
Etc., etc.

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TAILLESS AIRCRAFT.

From time to time reports come through of various tailless aeroplanes which have been tested successfully. Usually they seem to come from France, but the latest one emanates from Farnborough, where a tailless light aeroplane, which was, one believes, originally intended for the 1923 or 24 Lympne competition, has been persuaded into the air.

The designer is Mr. G. T. R Hill, but so far as one can gather the Air Ministry, following their secrecy mania, have placed it on the secret list so that it is now also a "taleless" aeroplane.

Quite what the use of either a tailless or taleless aeroplane is one does not pretend to know. At any rate it would be difficult to imagine Mr. Alan Cobham in a taleless aeroplane.

To the various constructors of various tailless aircraft one would recommend the philosophy of Mr. Davy Burnaby's latest song in the last (and unfortunately least) programme of the Co-optimists on the subject of the guinea pig, which (the song, not the guinea pig) runs as follows :—

How can a guinea pig show he's pleased
If he hasn't got a tail to wag?
All other animals, you will find,
Have a little tail stuck on behind.
If they'd only put a tail on a guinea pig
And finish off a decent job,
The price of a guinea pig would go right up
From a guinea to thirty bob.

One is inclined to think that the value of a tailless aeroplane if so treated would increase in the same proportion.—

G. D.

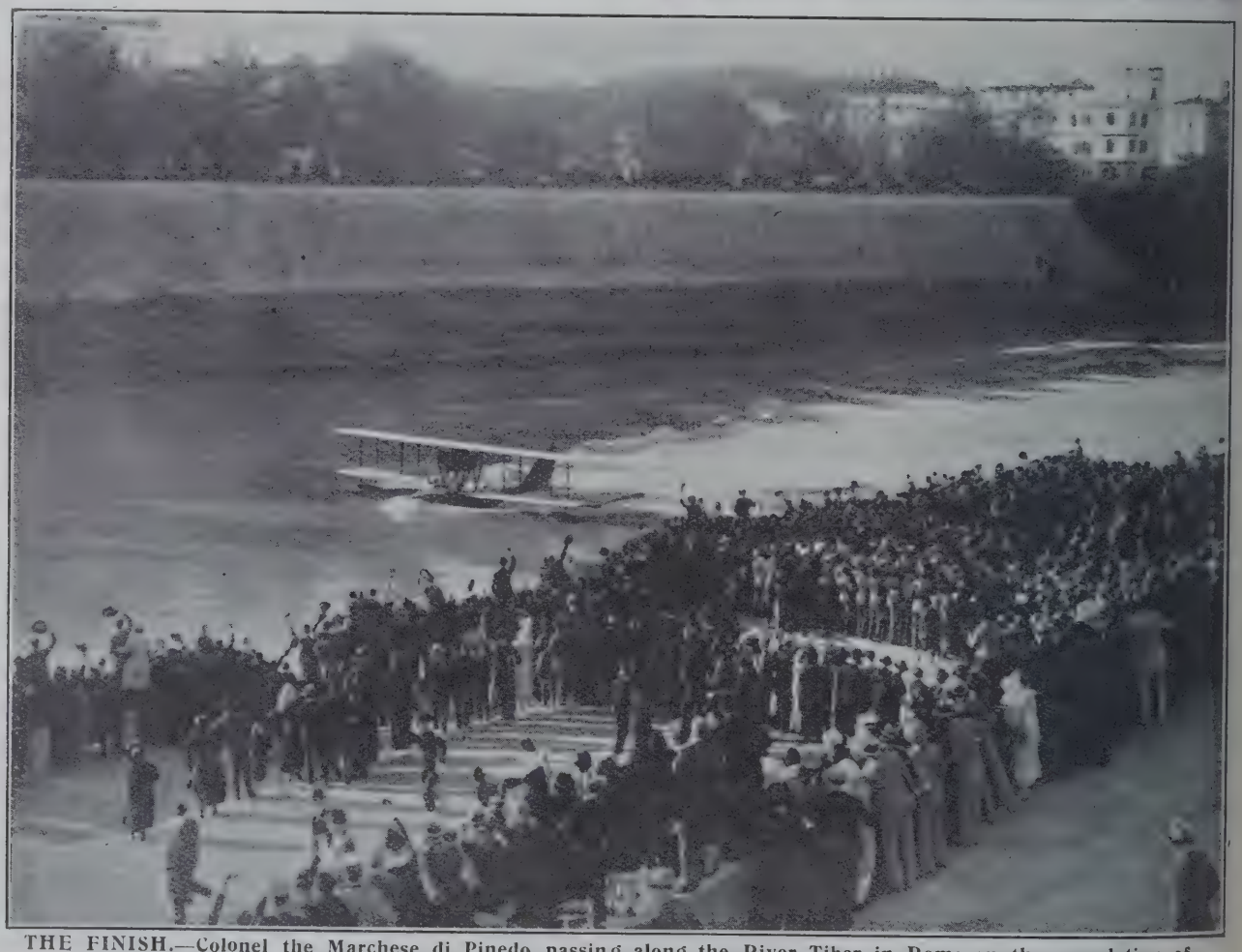
AVIATION IN BOLIVIA.

In August, 1924, a Bolivian Military Air Service, or Cuerpo de Aviadores, was established in connection with the Centenary Celebration, and at a great military review held at La Paz, over 40 aircraft participated.

The machines used were a series of five Fokker C.Vs (500 h.p. Hispano-Suiza engines), and a number of Bristol Fighters (Rolls-Royce Falcon engines), Martinsyde F.6s (Viper engines), Avro 504s (Le Rhone, Mono, Lynx and Viper engines), two Fiat B.Rs. (700 h.p. Fiat engines), one Potez and two Breguets.

So far only two air stations have been constructed, but a special Government grant is being made to equip further aerodromes throughout the country.





THE FINISH.—Colonel the Marchese di Pinedo passing along the River Tiber in Rome on the completion of his 34,000 mile flight from Rome to Japan and back via Australia. The Marchese is seen above.

The D.H. Type 50.J

ENGINE 385 H.P. ARMSTRONG SIDDELEY JAGUAR

AIRCRAFT FOR HIGH SPEED TRAVEL



THE D.H. Type 50.J is a direct development of the D.H. Type 50.A which has been submitted to and survived the severest tests of commercial operation on routes in many parts of the World. It has also successfully accomplished the pioneer flights to Rangoon and back and round the Australian Continent. The D.H.50.J is particularly suitable for survey or exploration flights in hot climates or for operations from high altitude Aerodromes.

Speed 136 miles per hour.
Range 6 hours.
Rate of climb at ground level...1 250 ft. per minute
Ceiling.....20,000 feet.

Full particulars of this and other de Havilland Types will be supplied upon application to:—

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JUPITER OMNIPOTENS.

In view of all the fuss that is being made because a few aero-engines for a purely experimental squadron of the Royal Air Force are being ordered from America, there is particular interest in recording the good work which is being done in foreign countries by an engine of British design, just by way of showing what a British firm can achieve when it sets about its job in a businesslike way, instead of sitting still and complaining about foreign competition.

The Jupiter air-cooled radial engine, designed and built in this country by the Bristol Aeroplane Co. Ltd., has, as is well known, secured a very high reputation, not only in Britain, but also in many foreign countries where its British origin is not likely to be regarded as a point in its favour. Some time ago this paper made known the fact that the Gnôme-Rhone firm—one of the pioneers of the aircraft engine industry—had acquired the French rights in the design. In addition the Italian Government have acquired the Italian rights, Laurin and Klement those for Czecho-Slovakia, and no less than thirteen European States are using Jupiters as part of their standard military aircraft equipment.

In France, where a well-established aero-engine industry exists, there has naturally been some considerable feeling concerning the introduction of an alien type, and the consequent payment of royalties to the British. So it is obvious that orders for the Jupiter would not be placed in large numbers by the French Government unless there were very strong reasons for so doing.

The French Ministry of War has just allocated the orders for aero-engines for the current year. There has naturally been very strong competition for the orders, and every possible use has been made of the foreign origin of the Jupiter to influence the authorities in favour of indigenous aero-engines. The result is that orders have been given for 220 Jupiters, 220 Hispano-Suizas, 180 Renaults and 180 Lorraine-Dietrich. In addition 150 Jupiters have been ordered this year for the French Navy. Up to date a total of 540 of the type have actually been purchased by the French Government.

That orders of this magnitude should have been passed for the Jupiter in France only becomes explicable when the performances obtained by this engine in competition with its French competitors, are considered. A few examples here given will indicate the nature of the Jupiter's superiority.

The well-known Farman Goliath, when fitted with Jupiter engines, has a noticeably increased useful load and an improved performance. Within the past three months three complete squadrons of this type have flown from Cuers, near Marseilles, to Casablanca, in Africa (1,100 miles), with one intermediate landing at Alicante, for fuel. These machines carried full war equipment and a crew of five. The whole distance was covered in one day in some instances, but the lack of refuelling facilities at Alicante rendered this impossible in other cases. And there were no engine failures.

A squadron of Goliath seaplanes, also with Jupiters, was flown from Bizerta to Mellila (750 miles), and was there used for bombing during the recent Moroccan operations. It has been reported by Marshal Petain that these Jupiter-engined machines had proved superior to all others for their reliable and regular operation. They were particularly notable as suffering no ill effects from the very high temperature, which led to boiling of water-cooled types.

In the competition for single-seat fighters now in progress in France, the majority of entries have Jupiter engines, and these engines stand alone in that contest as having given not the slightest trouble. The Gourdou Leseurre machine with a Jupiter has a ceiling of 9,750 m. (32,000 ft.), and climbs to 8,000 m. (26,200 ft.) in 31 mins, and is easily the fastest machine at heights above 2,000 m. (6,500 ft.).

The Dewoitine-Jupiter, Bleriot-Jupiter and Wibault-Jupiter have also distinguished themselves by remarkable performances, and a Ferbois (Bernard) machine—built by the builders of the World's Speed Record holder, with the same engine, is expected to do great things.

In the commercial sphere the Jupiter is doing as well in France as it is in the Army and Navy. The Spad 56, eight-seater limousine, carries 240 lbs. extra pay load, is 6 m.p.h. faster, and has a better climb than the same machine with a water-cooled engine. The type gained a Word's Height Record, carrying 550 lbs. useful load, and a similar machine recently flew from Paris to Teheran (5,516 km., or 3,420 miles) in 34 hours' flying time, at an average speed of 162.2 km. (101 m.p.h.) per hour. The only alteration from the standard commercial equipment used for this flight was the fitting, at Constantinople, of an enlarged tank, to permit a non-stop flight from Constantinople to Aleppo (1,100 km., 674 miles)—which flight was completed in 7 hours 20 mins.

Another machine to which Jupiters have been fitted is the Potez three-engined type, where a better all-round performance and an increased pay load are obtained.

The results obtained with these engines in France have led to very considerable orders for Jupiter engines by the Polish Government. These orders include one for 32 Jupiter-engined Goliath bombers. In addition, 50 Jupiter-engined Spad single-seat fighters have just been delivered to the Polish Government, besides a number which are being supplied for reconnaissance and bombing machines.

But perhaps the biggest score of all has been made in Holland. Some time ago THE AEROPLANE recorded the fact that the K.L.M. fleet of Fokkers was for sale, as it was being replaced by machines of a new type. Commenting on the announcement, which was first published in this paper, the Amsterdam *Handelsblad* says :—

> Other foreign trade papers also discus this important decision of the K.L.M., which company is recognised as one of the largest air transport undertakings in the world. *Les Ailes*, for instance, calls it "a very encouraging sign that one of the largest aviation companies has decided to have to take such a momentous decision."
>
> We can state that these press notes are correct. The K.L.M., however, has not put up for sale *all* its aeroplanes. About four machines of the famous F.3 series, with which K.L.M. obtained such excellent results, will be retained to be used in special circumstances.
>
> As regards the new aeroplanes to be purchased, it is the intention of the K.L.M. Management to have its new fleet consist of Fokkers of the new type F.VIIa, equipped with the 400 h.p. air-cooled Jupiter engine, which combination has showed itself to constitute a great technical improvement.

Thus it may be seen that the oldest existing air line in Europe, with all its experience behind it, has decided to use the premier British radial engine.

It would appear that we have little to fear technically from foreign competition, and that it is on the commercial side that we need to revise our ideas.

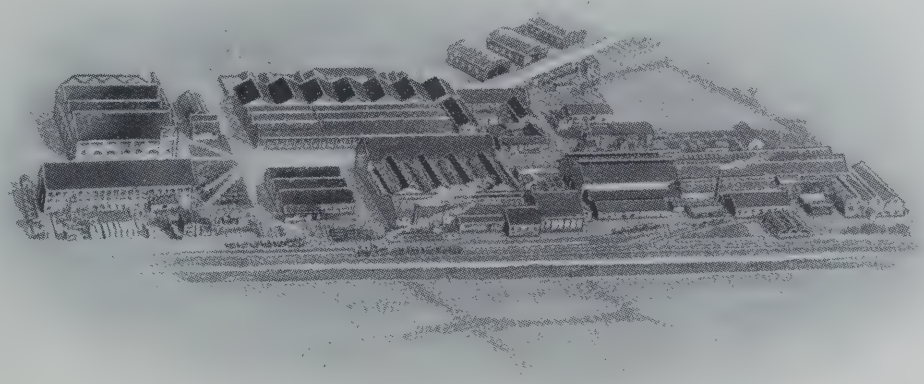


ANGLO-DUTCH EQUIPMENT.—The new Fokker two-seater fighter with Bristol Jupiter engine. The Fokker F.VIIa, with a Jupiter engine, is to be the new equipment of the K.L.M. line.

WESTLAND

THE IDEAL FACTORY FOR THE PRODUCTION OF AIRCRAFT

FOR COMMERCIAL AND MILITARY PURPOSES.



View of the Westland Works photographed from a Westland Aeroplane.

The rapid advance which has been made in the field of commercial Aircraft is due to a large extent to the practical information and experience gained in designing, constructing and testing Aircraft of Military type by firms who realise to the fullest extent the vital importance to industry of the development of Aircraft.

The Westland Aircraft Works have been privileged to design and construct machines of all types for the British Government, and the same skill in design and manufacture has been applied to their commercial Aircraft.

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MR. BRAMSON ON PRACTICAL FLYING.

The paper by Mr. Bramson read before the Institution of Aeronautical Engineers with the title "Practical Flying," was, it was explained, written after the title had been chosen and the latter was in fact a misnomer. The paper deals in fact with flying under conditions which are not yet practically available, but which the author contends should be practical.

The paper in fact was an examination of the defects of air line transport as it exists to-day and of the methods by which those defects might be rectified.

Briefly the case presented was that flying on air lines was at present neither safe, regular nor economical, and that to a large, if not to an overwhelming, extent the latter defect was the result of the two former and that if safety and regularity were to be obtained the latter defect would automatically disappear.

The regularity of Imperial Airways 1924/25 as given in the Air Ministry Annual Report was 94 per cent. on the basis of ratio of flights commenced to flights completed without interruption. This was not a true measure, as the real basis of regularity depended on flights scheduled, and thus covered flights cancelled owing to any cause. As an estimate of the real irregularity the author gave a figure of 78 per cent. (This it may be said is probably lower than the truth because it is based on maximum services run, which probably includes some extra—non-scheduled—trips to meet abnormal traffic.)

From a consideration of the accidents which have actually occurred as shown in the Air Ministry reports, Mr. Bramson drew certain very sweeping but undoubtedly just conclusions. These are briefly that the irregularity and the danger of flying are the result of two causes—one the risk inherent on "hanging" on one engine—that is the certainty that a forced landing will result from engine failure, and the other the necessity of seeing an aerodrome before it is possible to land upon it.

Given a machine which can continue to fly despite an engine failure, and arrangements which will permit safe landing at the terminal aerodromes despite the worst of fogs or other causes of poor visibility, and flight with the regularity and safety of a good railway service will be possible.

The first requirement can be met by the use of three-engined machines capable of flying on any two engines. The second can be met by proper equipment of terminal aerodrome. The author read from the Report on Civil Aviation 1924/25 the brief account of the proposed experimental equipment of Croydon Aerodrome with Neon fog lighting and a leader cable, but expressed his incredulity as to the value of any lighting system as a method of locating the aerodrome in really bad conditions, taking into account the necessity of flying at a height sufficient to clear all local obstacles. He also thought the proposed leader cable encircling the aerodrome would be of little value as the pilot would find it extremely difficult to follow it. He suggested that what was required was the following equipment:—

1. Two-way wireless communication between aeroplane and aerodrome. (2) A good altimeter with a special fixed scale of datum points to which zero can be set. (3) An acoustic listening post also in direct two-way communication with the pilot. (5) A straight Loth cable of a few miles leading straight over the aerodrome, and (5) direction finding wireless to bring the machine near enough the aerodrome to pick up the cable.

The method of operation would be as follows. The pilot would obtain information by wireless as to the state of obscurity at the aerodrome and would be given the correct zero setting of his altimeter, allowing him to fix his height above the aerodrome and to fly at a predetermined altitude which would bring him safely over any obstacles. D.F. wireless would bring him near enough to pick up the cable and he would fly along this at the required height. The acoustic listening post—established near the aerodrome at one side of the cable—would pick him up on approach and would inform him when he was at the right point to switch off and glide down to reach the middle of the aerodrome. Actual landing would be carried out either by fitting an oleo undercarriage capable of taking the shock of gliding onto the ground, or a Neon lighting system might give him the necessary warning of a close approach to the ground to permit flattening out. To reach the aerodrome accurately means only correct placing of the listening post and adoption by the pilot of a standard gliding speed or incidence.

Under such conditions forced landings due to engine failure and irregularities due to weather would practically disappear, air services would become at least as reliable as train services and a large public demand for air services would arise. Once these conditions existed a paying fare for air transportation could be charged.

There was only one important form of accident not covered by such a system—the involuntary stall. The tendency to stall would greatly decrease if forced landings from weather and engine failure were abolished—and a mechanism which would operate to warn the pilot that a stall was imminent was already known and should avert this danger.

A NORTH-SOUTH AMERICA MAIL SERVICE.

Early in September two Dornier Wals, flown by German pilots (two 360 h.p. Rolls-Royce engines), belonging to the Sociedad Colombo-Alemana de Transportes Aereos (S.C.A.T.D.A.), carried out an experimental flight from Barranquilla, Columbia, through Central America, to Havana and Key West, Fla.

The object of the flight was to examine the possibilities of an air mail service between North and South America.

Owing to the fact that the U.S. Post Office will not grant a mail contract other than to an American company, a new company has been formed, known as the Inter-American Airways, Inc., which has been incorporated under the laws of the State of Delaware.

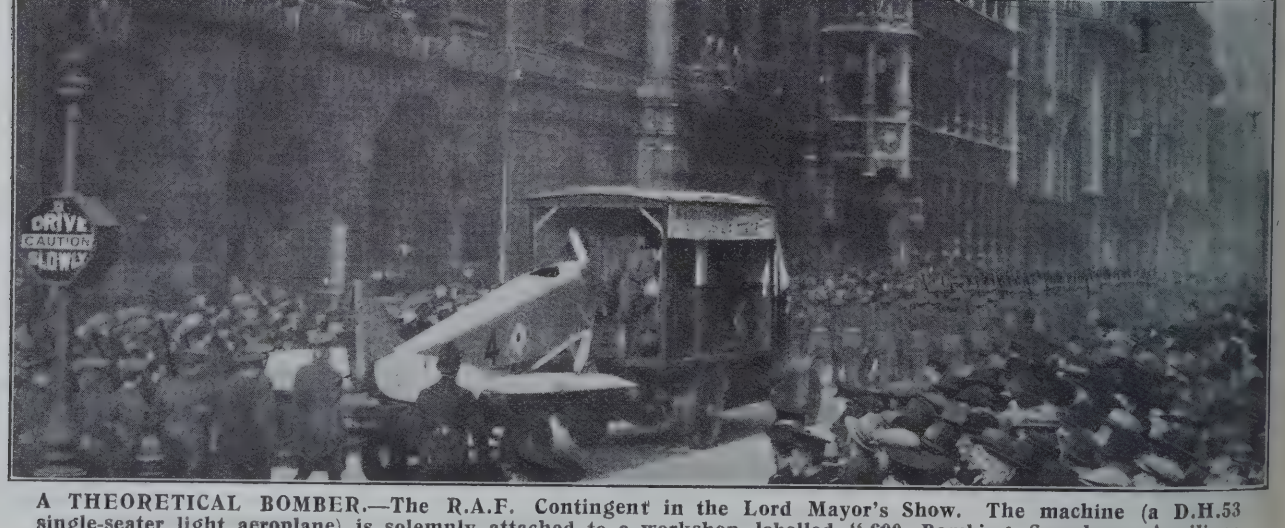
This company will be distinct from the S.C.A.T.D.A., although the latter firm will co-operate to the fullest extent, and proposes to extend its present very successful Columbian air services to Venezuela and Trinidad, in order to connect up with the new service.

The proposed route will be in two sections, one from Barranquilla to San Jose, and the other from Puerto Berrio to Key West. The trip across Guatemala will be via the existing railway.

The new line will concentrate on mail and express goods and it is estimated that owing to the poor connections between the two continents, which is mainly kept up by fruit and cargo boats, the time for transportation of mails will be cut down by as much as from three to eighteen days, according to the destination of the freight or mail matter.

Passenger traffic, at any rate at first, will be discouraged in the interests of express matter.

It is not known when the service is due to begin, as considerable work is necessary to prepare the route, following on the report of the expeditionary flight just completed.



A THEORETICAL BOMBER.—The R.A.F. Contingent in the Lord Mayor's Show. The machine (a D.H.53 single-seater light aeroplane) is solemnly attached to a workshop labelled "600 Bombing Squadron, Auxiliary Air Force. It is perhaps as useful as the bombers produced to the specifications of the Air Ministry's experts would be in a real war against modern aircraft.

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THE LIGHT AEROPLANE CLUBS.

The London Aeroplane Club.

During the past week fog and rain prevented any flying on four days. Flying on the three days was also somewhat limited. The total flying time for the week was 13 hours 50 minutes.

The following members were given flying instruction:—J. S. M. Michie, Sir John Rhodes, O. J. Tapper, N. J. Hulbert, Miss Fell, N. Jones, A. Kennedy, Miss O'Brien, Commander Allen, Miss Tagart, A. R. Ogston, W. Hay, C. H. Craig, K. V. Wright, J. Barros, E. K. Bligh, D. Kittell, A. Lees.

G. H. Craig and N. J. Hulbert made solo flights and will shortly do the qualifying tests for their Certificates.

W. Roche Kelly and Sq. Ldr. M. E. A. Wright, both holders of Certificates (and incidentally war pilots of prolonged experience) made solo flights.

F. G. M. Sparks, the senior pilot instructor, is away on his week's holiday, W. J. Witcombe, the other pilot instructor, having returned to duty.

The Reid machine for testing flying aptitude presented to the Club by Sir Charles Wakefield, Bart, has now been erected in the Club shed and on Saturday afternoon Flt. Lt. G. H. Reid, the inventor, gave an informal lecture to the members present and tested them individually on the machine.

On Sunday afternoon, in spite of the fog which prevented any flying, a large number of members arrived at the aerodrome and the Reid machine was in great demand, all the members present going through the test. The charts clearly demonstrated the progress made by the various members in their flying instruction. It is proposed to test all flying members at regular intervals on the Reid machine, and for the present these tests will be done during the week-ends.

The Newcastle-upon-Tyne Aero Club.

Week ending Sunday, Nov. 15.— Hours flown: LX, 13.15; LY, 10.20; Total 23.35.

The following members have flown under instruction with Major S. A. Packman during the week:—Messrs. W. M. MacKay (2 hrs. 37 mins.), A. E. George (66 mins.), R. N. Thompson (1 hr. 43 mins.), J. C. Lawrence (45 mins.), G. H. Waugh (3 hrs. 31 mins.), N. S. Todd (30 mins.), W. Todd (30 mins.), A. D. Bruce (30 mins.), R. Todd (15 mins.), C. Thompson (30 mins.), C. B. Marshall (15 mins.).

Mr. N. S. Todd was launched solo on Wednesday (11th) and has flown 45 mins. in two flights. Mr. P. Forsyth Heppell has flown 1¾ hrs. solo. Mr. R. M. Stobie solo, 3 hrs. 22 mins., and 1 hr. 5 mins. secondary dual.

Mr. Baxter Ellis has flown, with the following passengers, for 1 hr. 17 mins. during the week:—Mr. Alex. Peacock, Junr., Mr. C. B. Marshall, Mrs. W. B. Ellis (Mr. Ellis's mother, who thoroughly enjoyed the flight) and Mr. Sutherland.

Major Packman took as passengers:—Miss Cochrane, Mrs. R. N. Thompson, Miss Todd and Mr. J. R. Campbell.

The weather throughout the week has been very cold with fog every day and flying has been greatly restricted. Though instruction has gone on as usual, it has not been suitable for members flying solo on the most convenient days of the week.

Club room gossip during the week-end is very interesting. Many matters which are known only to a few on the aerodrome become common knowledge over the teacups, etc. One member is certain that Mr. Brown (engineer) appeared to be quite relieved, for the time being at any rate, when the flat turn which Mr. Todd performed at a height of fifteen feet at the beginning of his first solo flight was completed.

The hope was generally expressed that Mr. Baxter Ellis's debut before the film would be successful and that the pictures would not be affected by the fog which prevailed at the time. The date of showing this film is, it seems, anxiously awaited.

Major Packman has reduced the revs. of the engine now to 1,500 for ordinary flying, when the machine can, he states, still be flown "hands off." The experiments, begun with the object of reducing consumption of fuel as much as possible and wear and tear of machine and engine, has resulted in the gradual reduction of the engine speed from 1,800 to 1,500 revs. and guesses are being hazarded as to the possibilities of removing the engine altogether in the near future.

Air Vice-Marshal Sir Sefton Brancker has kindly consented to be present at the Opening Ceremony on the 21st. It is probable that he will arrive in Newcastle by air.

The Lancashire Aero Club.

On Nov. 12 Mr. Cantrill and Mr. Scholes were both at the aerodrome, A. Goodyear and G. Hardy having instruction during the afternoon on LR. On Friday, 13th, Mr. Cantrill tested LR and LV and then took G. Hardy and A. Goodyear for dual. Mr. Scholes was busy all the afternoon giving S. Crabtree dual on LV.

Saturday, 14th, in spite of bad weather (fog) was a busy day. There were five "solo" flights by pupils, two of which were "first solos." Mr. Cantrill tested LR, after which A. Goodyear had 40 minutes' dual. At the conclusion of this "dual" Mr. Cantrill got out of the machine and Mr. Goodyear made his first "solo," a nice flight of 10 minutes ended by a perfect landing. Mr. Scholes tested LV and gave D. F. Dyson 40 minutes' dual; followed by H. Stern, 40 minutes' dual. H. Macnair 15 minutes' dual. Mr. Cantrill on LR gave T. English 20 minutes' dual, P. Mickelson 30 minutes' dual, J. Wilkinson 30 minutes' dual, after this T. Wilkinson went up alone for 10 minutes on his first solo. He landed correctly after an excellent trip. Both Mr. J. Wilkinson and Mr. A. Goodyear who made their first solos were entirely trained by the Club.

Other solo flights were made by A. Goodfellow 20 minutes, M. Lacayo 25 minutes, J. Leeming 15 minutes.

Sunday, 15, Mr. Cantrill tested LV and gave the following pupils "dual":—A. Wilkinson 20 minutes, B. Hope 20 minutes, A. Goodyear 20 minutes, R. Williams 15 minutes, B. Hope (again) 15 minutes, C. Tummers 15 minutes. Mr. Scholes tested LR and gave instruction to:—S. Crabtree 30 minutes, D. Macnair 30 minutes, E. Moss minutes, F. Davison 15 minutes, H. Stern 30 minutes, G. Chadwi 20 minutes. The following made solo flights:—A. Wilkinson minutes, Mr. Lacayo 20 minutes, J. Leeming 15 minutes.

Interest at the moment is centered on Mr. Stern and Mr. Crabtr both are doing landings and are expected to go solo any time. Th are racing neck to neck and the betting is even. Next week-e should settle which of them is first to fly alone.

The Midland Aero Club.

As no reports have been received for the last two weeks from t Midland Club the presumption is that flying is once again moribu in the Birmingham district.

The only item of interest which has appeared in the Press is t fact that the Air Ministry has once again taken over the Cas Bromwich aerodrome.

THE TWO-SEATER LIGHT AEROPLANE COMPETITIO 1926.

The Royal Aero Club in consultation with the Air Minist and the Society of British Aircraft Constructors have issu the following decisions with reference to the Two-seat Light Aeroplane Competition 1926 for which the Proprieto of *The Daily Mail* have offered Prizes amounting to £5,0 as a result of various inquiries from intending compe tors:—

Fuel.—The ingredients of the fuels must be commercially obtainal in bulk. The fuel used by all engines in the competition shall substantially the same as that used in the respective type tests Certificates of Airworthiness and shall be within 5 per cent. of t specific gravity of such fuel. The unit of fuel is a unit of weight

Cockpit Width.—A cockpit width of not less than 24 in. to measured at the seat level must be provided for both pilot and pa senger. In the case of a side-by-side machine the cockpit width mu not be less than 44 ft. to be measured at the seat level. In the ca of a machine with staggered seats a width of not less than 24 in. mu be provided for both pilot and passenger to be measured at t seat level.

Certificates of Airworthiness.—A Certificate of Airworthiness for t aeroplane must be obtained and produced to the Royal Aero Club o week before the opening date of the Competition.

R.Ae.C. MONTHLY HOUSE DINNERS.

The Committee of the Royal Aero Club have decided hold Monthly House Dinners at the Club. After dinner su jects of interest will be debated. The first dinner will be he here on Thursday, Nov. 26, 1925, at 7.30 p.m., and Mr. C. Fairey will open a debate on "American Aviation."

The Duke of Sutherland, the Chairman of the Club, w preside. Morning dress will be worn and the dinner will co five shillings. Members wishing to attend are requested notify the Secretary as soon as possible.

This is an excellent idea. If it had been started a few yea ago, the Club might have been in a much more lively sta than it is. And the good Mr. Frisbee should now have a opportunity of displaying his ability, which has been grie ously wasted of late.

The subject for the opening debate is of considerable i terest, and one hopes that all those rivals and critics who ha been attacking the Air Ministry and Mr. Fairey for importin American engines and American ideas in aircraft design wi turn up in force and air their views. One feels sure tha nobody will be more pleased that Mr. Fairey to discuss fac to face with his critics, the unpatriotic behaviour which ha been alleged against him. A discussion between him and *Th Morning Post's* tame expert ought to be particularly ente taining. What the official communiqués during the War 191 18 used to call "a certain liveliness" should be observabl on the Aero Club Front.—C. G. G.

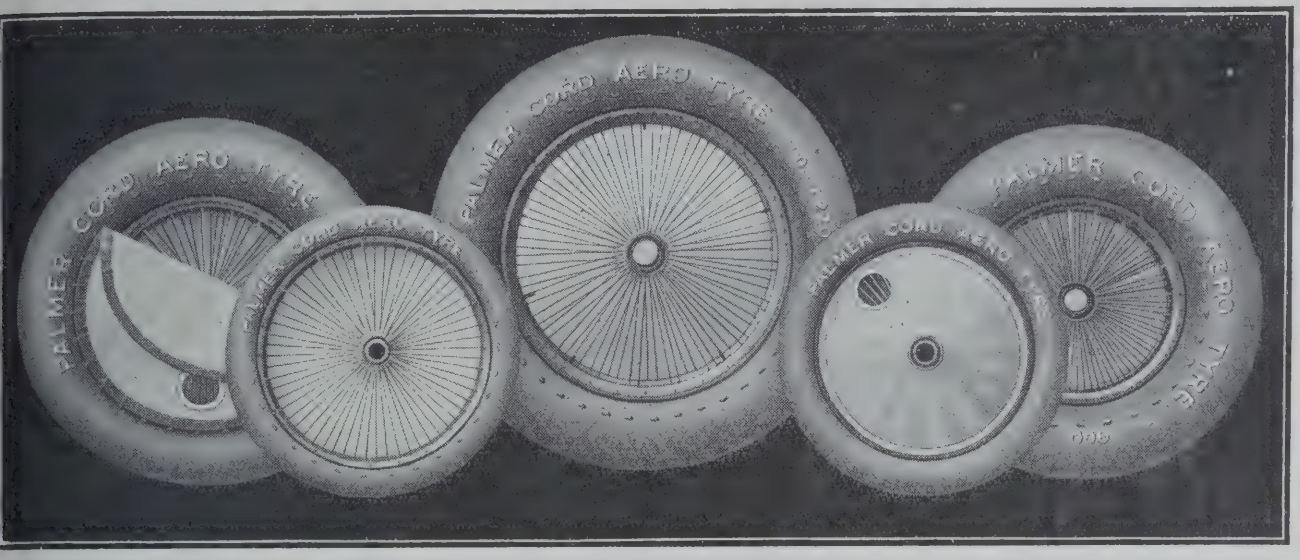
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300×60	16	111.12	25.4	Central	,,	112	150.	38.09	Central	,,	210	185.	60.32	Central
,,	17	72.39	12.7	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	,,	147	178.	55.	Central	,,	149	185.	55.	Central
,,	138	130.	38.09	Central	750×125	77	178.	44.45	132/46	,,	155	220.	66.67	Central
575×60	21	160.	28.	Central	,,	92	185.	55.	135/50	,,	166	185.	55.	125/60
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,,	111	150.	38.09	104/46	,,	96	178.	55.	132/46	,,	108	185.	55.	125/60
600×75	21	160.	28.	Central	,,	99	178.	38.89	132/46	,,	128	220.	66.67	Central
,,	34	150.	31.75	104/46	,,	112	150.	38.09	Central	,,	137	250.	80.	Central
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50	,,	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	,,	85	185.	55.	Central	1100×220	134	220.	66.67	Central
,,	79	178.	44.45	Central	,,	161*	185.	55.	135/50	,,	136	250.	80.	Central
,,	100	178.	38.09	132/46	,,	163*	185.	66.67	135/50					
,,	101	178.	31.75	132/46	,,	169†	185.	55.	135/50	1250×250	133	250.	80.	Central
00×100	77	178.	44.45	132/46	,,	211*	185.	60.32	135/50	,,	154	304.8	101.6	Central
,,	92	185.	55.	135/50	1000×150	131	220.	66.67	Central	1500×300	115	304.8	101.6	Central
,,	95	185.	55.	Central	,,	150	185.	55.	Central	,,	126	304.8	152.4	Central
,,	96	178.	55.	132/46	,,	167	185.	55.	125/60	1750×300	139	400.	152.4	Central
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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 11; Tuesday, 9, Wednesday, 9; Thursday, 15; Friday, 9; Saturday, 8; Sunday, 1.

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London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 34, passengers 104, freight 11 tons.

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K.L.M:

Amsterdam--Rotterdam—London: Machines 11, passengers 15, freight 4 tons.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES: Nil.

Total number of trips by British Machines: 34, carrying 104 passengers. Foreign machines: 28, carrying 53 passengers.

Comparative Figures:

For week ending Nov. 15:

Machines, 62; Passengers, 157; Crews, 75. Total personnel, 232.

Corresponding week, 1924:

Machines, 40, Passengers, 153; Crews, 52; Total personnel, 205.

Corresponding week, 1923:

Machines, 80; Passengers, 157; Crews, 129; Total personnel, 286.

Corresponding week, 1922:

Machines, 22; Passengers, 55; Crews, 48; Total personnel, 103.

Corresponding week, 1921:

Machines, 63; Passengers, 121; Crews, 92, Total personnel, 213.

Corresponding week, 1920:

Machines, 51, Passengers, 86; Crews, 64; Total personnel, 150.

Croydon Notes.

Fog, rain, hail, snow, sleet, gales, and other cross-sections of weather, have made Civil Aviation a doubtful pleasure during the past week, and Croydon Aerodrome a singularly uncomfortable spot. In spite of this the level of traffic has remained fairly high. There has been a notable increase in the goods traffic of K.L.M. which has kept Mr. Leverton exceedingly busy.

Many people envied Mr. Leverton's house on the aerodrome itself, but now, unfortunately, owing to the Air Ministry's desire to improve the aerodrome, they are removing him and his household. It is not that the Air Ministry considers that the removal of Mr. Leverton and family is in itself an improvement. "Far from it," is the considered opinion of many. But all the buildings in the centre of the aerodro are to go, and with them the Leverton home. What wonderful sob-stuff film could be made of the complete Lev ton family wropt in sorrow and tears, as they watch the home being torn beam from ancestral beam.

Such a scene, however, is not likely to take place, as M Leverton has already had built for himself a new house the Wallington edge of the new part of the aerodrome, a there is likely to be no scene until the new house is molished by a misguided D.H.34, Vanguard, Hampstea W.10, or what-not, taking off against a S.W. wind.

In some recently worked-out statistics, it was shown th every 45th flight was interrupted by engine failure, eve 110th flight ended in a minor crash, and every 950th ended a fatal accident. One of the leading authorities in Civil Av tion has brightly suggested that the obvious remedy for th state of affairs is to cancel the 45th, 110th and 950th flig so that the Air Service can be operated with 100 per ce efficiency.

With reference to the remarks in last week's THE AER PLANE, on rudder control and the new Handley Pages, one told that Imperial Airways Ltd. will not take delivery their new machines unless this peculiarity has been rectifie

On Tuesday of last week, a concert broadcast from t Vickers Vanguard was billed to take place. There was thick fog locally, and so it had to be postponed until Frida Reference to this is made elsewhere. It was a silly stun anyhow, and the fact that the fog was only local made tho living where it was clear think that aeroplanes were prevent from flying by very mild, bad weather—which is certainly n the case.

Mr. Alan Cobham left the aerodrome on Monday, pen one hand and control stick in the other, bound for Ca Town. Mr. A. B. Elliott, of course, accompanied him to loo after the machine and engine, and it is considered that will be a very big feather in Mr. Elliott's hat if he can tak the Jaguar to the Cape and back without any of those min troubles usually met with in engines new to such service.

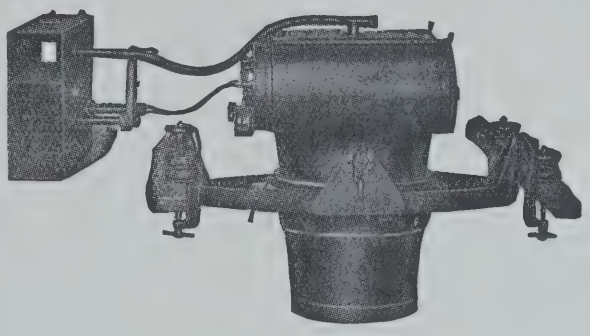
Mr. Perry has been testing several machines during th week. A D.H.9 has been leaping out of the A.D.C. shed and disappearing nimbly among the Nimbus at an astonis ing rate. Everyone is wondering what A.D.C. Aircraft Lt have done to the 9 to give it such a climb. But therein lie a story to which there will be a sequel shortly.—G. D.

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A Cold Bath.

A Farman Goliath, F-FHMY, piloted by M. de Lisle, carrying a mechanic, freight, and mail but no passengers, which left Croydon at 12.06 on Saturday, Nov. 14, alighted in the sea off Boulogne owing to engine trouble. The machine, which from photographs seems to have been totally destroyed in the process, was towed into Boulogne by a trawler. Neither the pilot nor passenger was hurt.

In Real Life.

On Friday, through the medium of the British Broadcasting Co. Ltd. (that wonderful concern which speaks of H.R.H. the Prince of Wales as "His Majesty"), the people of the British Isles were shown exactly how civil aviation is carried on.

The occasion was the spoiling of what otherwise might have been a really good concert by holding it in the Vickers-Rolls-Royce Vanguard instead of in the Studio.

The first part began at 17.40 p.m., when well-known artists, including Peter Gawthorne, Robert Hale, Morris Harvey, did various turns which were heard fairly distinctly, very indistinctly, or not at all.

At 18.30 an official of the Air Ministry gave from the studio an interesting talk on direction finding and then said that listeners were about to hear an actual machine on its way from Amsterdam to Croydon carrying out direction finding. There was to be no fake and it was all real.

At 18.40 hrs. nothing happened and we were told that there was delay. That certainly was reality in Civil Aviation. More reality followed when we were told that the delay was due to a broken oil pipe and this was being repaired at Croydon. But how the machine could be on its way from Amsterdam and was at the same time being repaired at Croydon, one could not imagine.

At 19.00 hrs. the machine did get into the air, but Morse jamming prevented Mr. Hinchliffe's words from being heard except occasionally. From what one could hear at Croydon it seemed that when cross bearings were taken the Vanguard which had left Croydon after 18.45 hrs. was over Hythe at about 19.00 hrs. This seems to show that the Vanguard has a speed of 240 m.p.h. What a pity she was not entered for the Schneider Trophy Contest.

When this "all real" performance had finished one waited for the second portion of the concert, or some announcement by the B.B.C. as to what was to be done about it.

One listened through the news bulletin and through one of the usual dreary "talks by nonentities on nothing in particular" and as no announcement was made and one did not wish to be bored by bad gramophone records, one switched off. (Talking of gramophone records, how *does* the B.B.C. manage to make its records so scratchy?

Between items it frequently sounds as though everyone in the studio is throwing things at one another. Judging from performance these "things" must be the gramophone records. After that and before playing they must be used as door mats.)

One heard subsequently that the postponed concert took place at 20.00 hrs.

Broken oil pipes and other mishaps do cause irritating delays day after day and week after week. We all know that, but there is no reason why the world at large should be told of it in such a convincing manner.

Imperial Airways Ltd. and the Air Ministry made a mistake in allowing such a silly stunt performance to take place.

The concert was not a success and the articles by the various wireless correspondents on the trip can only have impressed the public with the idea that flying is very dangerous and that the artists and wireless correspondents who made the trip were all heroes.—G. D.

THE INSTITUTION OF AERONAUTICAL ENGINEERS.

After Nov. 16 next the offices of the Institution of Aeronautical Engineers will be at 34, Broadway, Westminster, S.W.1, and all communications after that date should be addressed there and not to 60, Chancery Lane. The telephone number will be Victoria 5333.

PERSONAL NOTICES.

DEATH.

MATHEWS.—In October, at Camp Borden, Canada, as the result of a flying accident, Terence G. C. Mathews, Royal Canadian Air Force, son of Major and Mrs. R. G. Mathews, of Kalispell, Montana.

Mr. Mathews was educated at Trinity College, Port Hope, Ont., and graduated and passed into the Royal Military College, Kingston. He was training as a cadet in the Royal Canadian Air Force at the time of the accident.

BIRTH.

DAVENPORT.—On Nov. 12, at a nursing home, Cannock, Staffs, to Marie, wife of Flg. Off. W. F. Davenport—a daughter.

The following appeared in *The Times* of Nov. 14:—

IF CAPTAIN KENNETH HUGH BROWN, formerly R.A.F., or any person knowing his whereabouts, will COMMUNICATE with advertiser he will receive news probably to his advantage.—Write Box T.1,227 *The Times*, E.C.4.

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THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. Gray

Vol. XXIX. No. 22. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

A TOURING COMPANY.



OUR LEADING JOY-RIDERS:—Mr. Fred Holmes and Mr. Parkinson, of the Berkshire Aviation Tours, with their Staff, and their Avro Biplanes, of the type which has been sold all over the World by A. V. Roe and Co. Ltd., by the Aircraft Disposal Co. Ltd., and its successor A.D.C. Aircraft Ltd.



SAFETY FIRST!

K.L.G.'s are standard on all the world's most reliable aircraft. Not only are they the most efficient plug, as proved by their performance, but they are RELIABLE. K.L.G.'s are for aircraft the best Safety First device ever produced.

Sole Manufacturers:
THE ROBINHOOD ENGINEERING WORKS LIMITED,
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Sole Export Agents: Messrs. S. Smith & Sons (M.A.) Ltd., Cricklewood Works, N.W.2.



THE ORIGINAL NON-POISONOUS

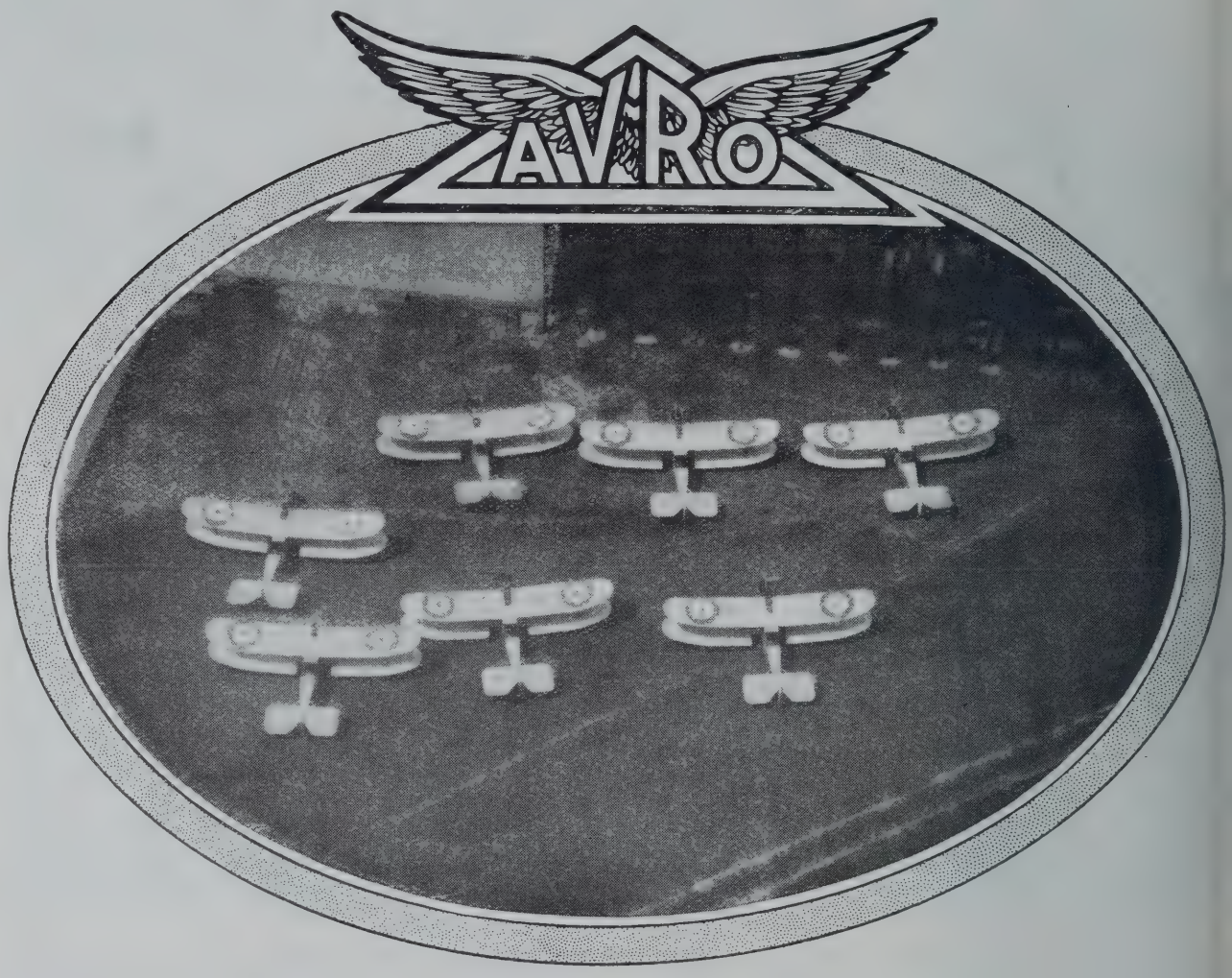
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TITANINE-EMAILLITE, LTD.,
Empire House, 175, Piccadilly, London, W.1.
Works:—London and New York.

Telegrams: Tetrafree, Piccy, London
Codes: A.B.C., 5th Edn. and Bentleys.



A FLEET OF AVRO "BISONS."

THE AVRO "Bison" is only one of the wide range of machines manufactured by A. V. Roe and Co., Ltd. It is a Fleet Gunnery Spotter, specially built for the British Air Ministry, and is equipped for taking off from and alighting on a ship's deck.

Inquiries are invited for machines for special purposes or for the supply of standard AVRO products.

A. V. ROE & CO., LTD., Avro Works, Newton Heath, Manchester.
London Office: 166, PICCADILLY, W.1. Experimental Works: HAMBLE, SOUTHAMPTON.

NOV. 25, 1925.

THE AEROPLANE

VOL. XXIX. No. 22.

Incorporating

Aeronautical Engineering

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Foreign, 3 months, 8s. 9d.; 6 months, 17s. 6d.; 12 months, 35s. Canada, 1 Year, 35s.
U.S.A., 1 Year, $8 50c.

QUEEN ALEXANDRA.

By the death of the Queen-Mother Alexandra, on Nov. 20, the aeronautical community has lost a friend who has done much for aviation.

From the earliest days of flying in this country Queen Alexandra took a vivid interest in all that pertained to the affairs of the air. In those days before the War, when air racing and exhibition flying made so much appeal to public interest, Queen Alexandra visited Hendon on various occasions and thus put the seal of her approval on the new sport, setting an example which was followed by others of high social position.

During the War 1914-18 Her Majesty continued to follow closely the progress of aviation. When she stayed with the late Empress Eugènie of France the two royal ladies were frequent visitors to the aerodrome at Farnborough. When residing at Sandringham, both during and since the War, Queen Alexandra used to visit the neighbouring aerodrome at Bircham Newton. And since the cessation of war Her Majesty has on three occasions graced the R.A.F. Pageant at Hendon with her presence even when King George himself has been unable to attend.

Her charm of manner to all those concerned with aviation who had the honour of meeting her on these occasions and her clear understanding of the significance of aviation acted as most valuable encouragement. And the fact that she should concern herself with flying gave a much-needed social lead to those whose interest in aviation is to be desired.

All who are concerned with aeronautical affairs in this country will mourn the loss of so good a friend. And on behalf of all such persons one tenders respectful sympathy to those intimately connected with our late Queen.

ON PROPOSALS AND DISPOSALS.

Despite the proverb more or less to the contrary there are occasions on which man disposes on his own account with quite good results. One of the best examples of man's disposals has been seen in this country since the end of the War 1914-18.

During the War masses of war material were produced regardless of expense, on the supposition that the War was going on for ever. That is the only way to produce material for war. It is impossible to say that the war will end at a certain date and so arrange things that the production of material shall be exhausted just about when the fighting ceases. Year by year as the war goes on the production of war material is increased in quantity, though not in quality, in the hopes that the enemy country may come to the end of its resources and that its fighting forces may be swamped by the mass of material accumulated by one's own country.

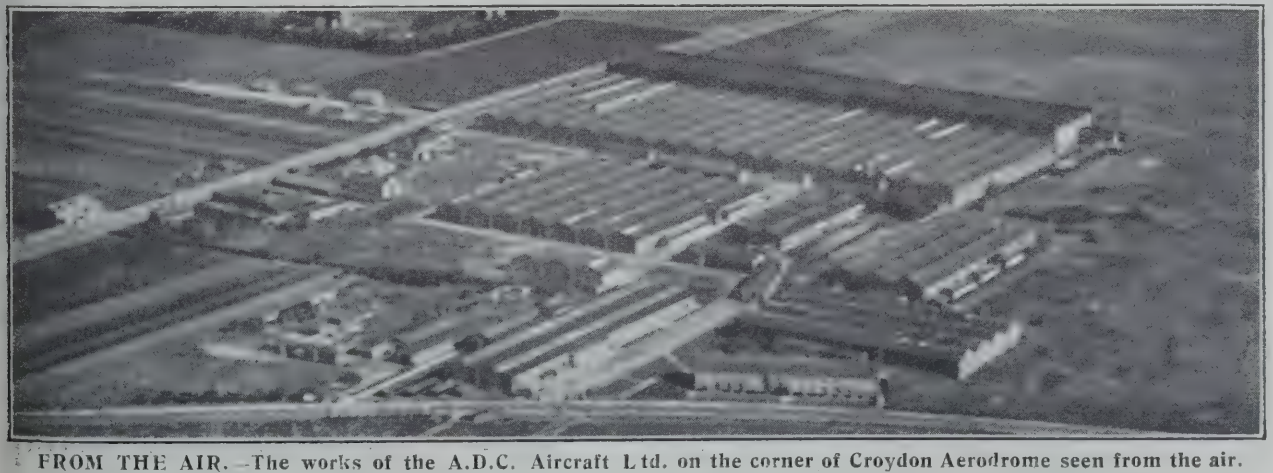
Thus it came about that when the Armistice was signed in November 1918 we had in England about enough war material of all sorts to have carried on the War for another two years if the rate of expenditure of material had remained as it was during 1918. As a matter of fact, if the War had continued, the rate of expenditure of material would have increased enormously For in spite of the fact that all our available men were in the fighting line and our casualties were being barely replaced by the youngsters who were reaching military age, our mechanical aids to warfare were increasing rapidly and consequently war material would certainly have been expended with corresponding rapidity.

So far as the Air Force was concerned the personnel also was increasing. At the time of demobilisation it numbered 30,000 officers and 300,000 men. And at a rough guess at least two or three thousand of those officers were new pilots in training who had not seen service in France. And besides them there must have been another 5,000 pilots in training in the Cadet Corps in England and in Canada. In fact if one's memory is not playing tricks Canada had something like 5,000 pilots in various stages of training who never even came to England.

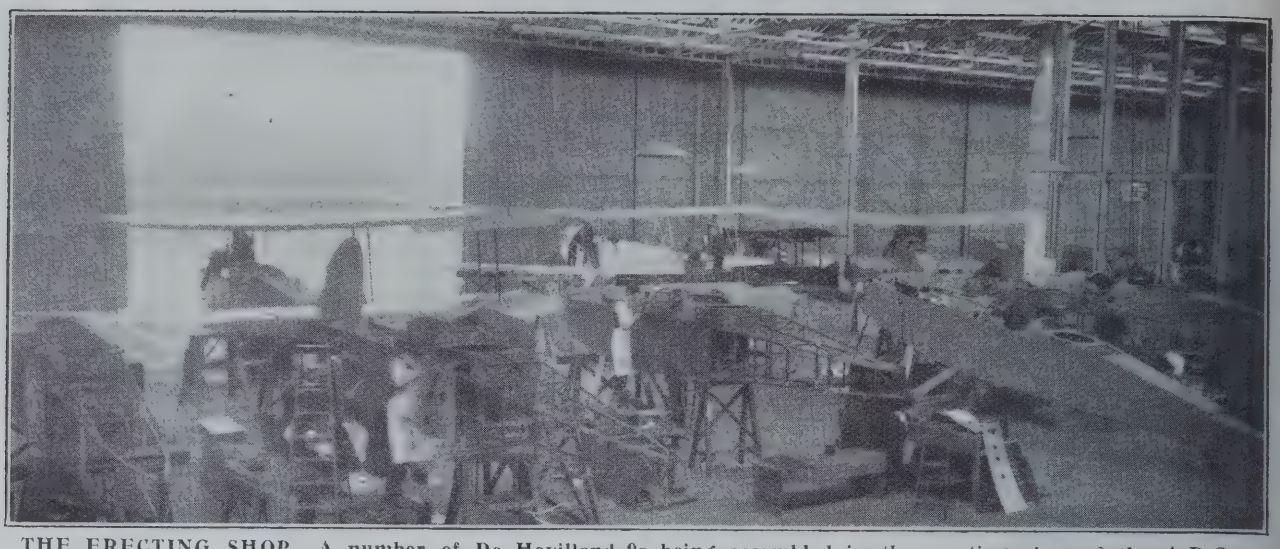
Therefore if the War had not stopped when it did we should have had several thousand extra pilots over the fighting line in 1919 and the consumption of aircraft would have been vastly greater in consequence. Hence our enormous output of air material just before the end of the War.

THE DISPOSALS PROBLEM.

Anyhow, as it turned out, the belligerents had to dispose



FROM THE AIR.—The works of the A.D.C. Aircraft Ltd. on the corner of Croydon Aerodrome seen from the air. The Croydon-Sutton road is at the bottom of the picture and the new Brighton road runs from halfway up the left side of the picture to the left top corner. The Aerodrome is on the right.



THE ERECTING SHOP.—A number of De Havilland 9s being assembled in the erecting shop of the A.D.C. Aircraft Ltd. The Aerodrome can be seen through the open door.

of all their vast supplies of war material somehow and a very difficult problem was presented to the various governments.

Every scrap of war material represented so many hours or fractions of hours of man's work. And when one comes down to hard facts man-hours of Labour is the only real Capital in the World. That is to say, anything tangible which represents Capital, whether it be ships or rolling-stock on railways, or buildings, only exists because so many man-hours have been put into it to produce it. Coal or iron-ore underground is of no value until Labour has brought it where it can be used.

Which of course is the real basis of all the arguments on Labour and Capital. In fact the Capitalist is only the brain-labourer who knows best how to apply the results produced by the manual-labourer.

Therefore all this war material represented so much of each nation's Labour turned into Capital. And, as our future enemies in Russia have proved so successfully, one cannot destroy Capital without impoverishing Labour.

Consequently the problem of getting rid of the accumulated stocks of war material resolved itself practically into two alternatives. Either the whole lot had to be destroyed and its capital value lost, thus leaving the way clear for the employment of labour in replacing such of it as might have been useful in some way. Or the useful portion of it had to be sold, more or less for what it would fetch, so that the money obtained for it might perform some useful service.

In Germany the problem was solved by the Allied Governments who decreed that all war material should be scrapped. This decision may have had something to do with the fact that immediately after the War all the German factories were able to turn straight away to the production of goods for peaceful purposes, with the result that until quite recently Germany has not suffered from the unemployment problem.

Germany did not have to mess about beating her swords into ploughshares, she merely started in right away to manufacture ploughshares. Which seems a more profitable occupation.

In France, roughly speaking, the problem was partially solved by giving away masses of war material to the various Central European States which were formed from the breaking up of the German and Austro-Hungarian Empires. The initial idea was to arm them so that if disarmed Germany tried to reorganise herself as a militant Power they would be ready to strike at the back of the Power which had originally made them into civilised countries and had saved them from Oriental barbarism, as represented by Russia in the East and Turkey in the South.

Also France got rid of quite a lot of material and employed quite a number of fighting men by sending military missions to the Central and South American countries and to the Far East to train the armies and air forces of the countries which they visited.

English Individualism.

In England we tackled the problem in a different way. As usual practically everything was left to private enterprise. Syndicates with large capital—albeit much of it only in paper—were formed all over the country to deal with different classes of unwanted war material. All this material was marked off by the supply departments of the Fighting Services as being "For Disposal." And so what amounted to a new word came into the English language.

"Disposals stock" meant anything which had been manufactured for use in the War—boots and bedding just as much as guns and gyroscopes—and was to be sold practically for what it would fetch. It did not in the least mean scrap material, but it did generally mean goods manufactured under stress of war demands and therefore composed of material and workmanship which was not up to the highest standard of the firms which made it.

Nevertheless most of it was actually better than anything manufactured in any foreign country. And the syndicates which bought it naturally put it on the market, as a rule, regardless of consequences to the industries which it affected.

For example, all the Government's commercial motor-vehicles were taken over by the Slough Trading Company, together with the vast area which had been turned from cornland into a central motor repair depot for the whole of the Army. It flooded the market with reconditioned and unconditioned motor-lorries. And the result was that the Motor Trade was practically unable to sell any motor-lorries of new designs for several years afterwards.

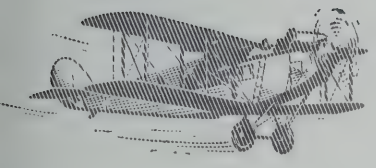
Aircraft Disposals.

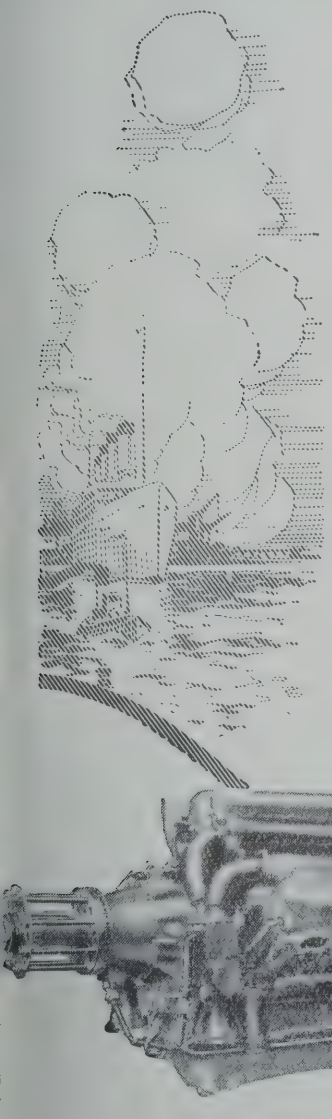
So far as aircraft were concerned the Air Ministry presented a few aeroplanes to Canada and Australia and New Zealand



FLYING IN COMFORT.—A De Havilland 50, with the Puma engine of which engines a large stock is held by A.D.C. Aircraft Ltd. The D.H.50 is recognised as one of the World's most comfortable vehicles.

"A Triumph of Engineering Skill"!





"The one bright spot appears to have been the Napier racing engine, which from beginning to end does not seem to have given any trouble at all, and the remarkably smooth acceleration and running of which caused favourable comment from all sides.

This engine is a triumph of engineering skill, and has attained a power-weight ratio that has probably never been exceeded."

Flight, 20th Oct., 1925

(Referring to the Schneider Cup race)

The Napier "Lion" is the standard for all aero engines.

NAPIER

Water-Cooled

AERO ENGINES

D. Napier & Son Ltd.

ACTON, LONDON

W.3



ENGINES.—A view showing the size of the engine shop in which re-conditioning and modifications are done.

and South Africa, and, one believes, to one or two Native States in India. But nothing official was done to promote foreign trade. It was all left to private enterprise.

Colonel the Master of Sempill organised a mission composed of personnel formerly of the Royal Naval Air Service, and took it to Japan where it taught the Japanese Navy how to fly. The result has been that very fine business indeed has been done with the Japanese Government by various British firms.

Major F. P. Scott went to Chile and trained a small but very efficient Army Flying Corps there. Major S. G. Kingsley went to the Argentine, and though he was cut out from the the Argentine Army contracts by the fact that the French and Italians gave away machines and equipment wholesale while he had to hold out for commercial prices, he did at any rate manage to effect quite a fair amount of business.

The Handley Page people very nearly pulled off some quite good business in Brazil, but there again we were cut out by the free-gratis-and-for-nothing business of the French and Italians. And the same firm sold several machines in China.

The Aircraft Manufacturing Company also tried to do business abroad with a certain limited amount of success. And Vickers Limited, through their multifarious ramifications all over the World, did some very respectable business.

But everywhere our efforts to sell new aircraft at prices which showed a commercial profit were baulked by the give-away prices or the real giving away of French and Italian aeroplanes.

For some curious reason American competition in aircraft was very slight until 1923, when the United States won the Schneider Trophy, in spite of the fact that American automobiles have captured the market in practically every country in the World. One can only ascribe the absence of American competition to the fact that nearly the whole of the American Aircraft Industry fell completely flat after the outbreak of peace, and there was practically nobody except the Curtiss Company left alive to try and get foreign trade.

The Formation of the A.D.C.

To deal with the stock of surplus aircraft material left over by the War a syndicate was formed, the moving spirits in which originally were the late Mr. Godfrey Isaac, Mr. Handley Page and Lieut.-Col. M. O. Darby, who until then had been intimately concerned as an R.A.F. officer with the production of war material. The firm was registered in March 1920 as the Aircraft Disposal Company Ltd.

If one recollects rightly the arrangement with the Government was that the syndicate which formed the company w to pay the Government something like £2,000,000 in hard ca for possession of all aircraft disposals material, and ther after half the firm's profits were to go to the Governme and the other half were to be retained by the firm.

One learns that since then the Aircraft Disposal Compar has paid the Government, exclusive of ordinary taxatio approximately one and a quarter million pounds. In ad tion the firm has paid in wages £500,000—a fact which quite important when one considers that after the outbre of peace most of the aircraft firms had practically no wo in hand and so had to dismiss all their carefully trained a craft workers. Thus the Aircraft Disposal Company becan the only firm that was able to maintain a large staff of skill aircraft workers during the period in which the Air Minist were placing practically no orders for new aircraft.

A.D.C. Aircraft Ltd.

As the years passed and the Aircraft Disposal Compar got rid of millions of pounds worth of disposals stock it b came evident that some day all the stock would be sold become utterly unsaleable and so the firm would have come to an end. But in those years the firm has acquired definite and very valuable good will, the result of both bra and manual labour, which as one has said is real Capit Consequently the Directors decided that steps must be take to perpetuate the firm's existence. This could only be do by making it in some measure a manufacturing firm and n merely a dealer in disposals stock.

Therefore the name of the firm was changed on July 3 1925, to A.D.C. Aircraft Ltd. This retains the good will the famous initials A.D.C. and at the same time justifies t firm in taking its place among aircraft manufacturers.

A Synopsis.

Writing on this subject recently for publication in anoth place, Captain W. H. Sayers said :—

" To-day, after nearly five years of successful work, t A.D.C. has gained a definite place amongst the leading ai craft manufacturing companies in the world. The large an extensive works at Waddon have been developed an equipped with the latest plant and machinery, an expert d sign and experimental staff established, a resident A.I. department approved and sanctioned by the Directorate Aeronautical Inspection, Air Ministry, is in operation, an the first productions of new aircraft and engines have bee introduced.



THE DE HAVILLAND MOTH.—The standard Light Aeroplane Club's equipment which is being flown by numerous members. The Cirrus engine, by which it is driven, is built by A.D.C. Aircraft Ltd.



A Silhouette of the FAIREY "FOX" AEROPLANE.

The "Fox," which is being supplied in quantities to the Royal Air Force, stands at the forefront of aerial equipment to-day.

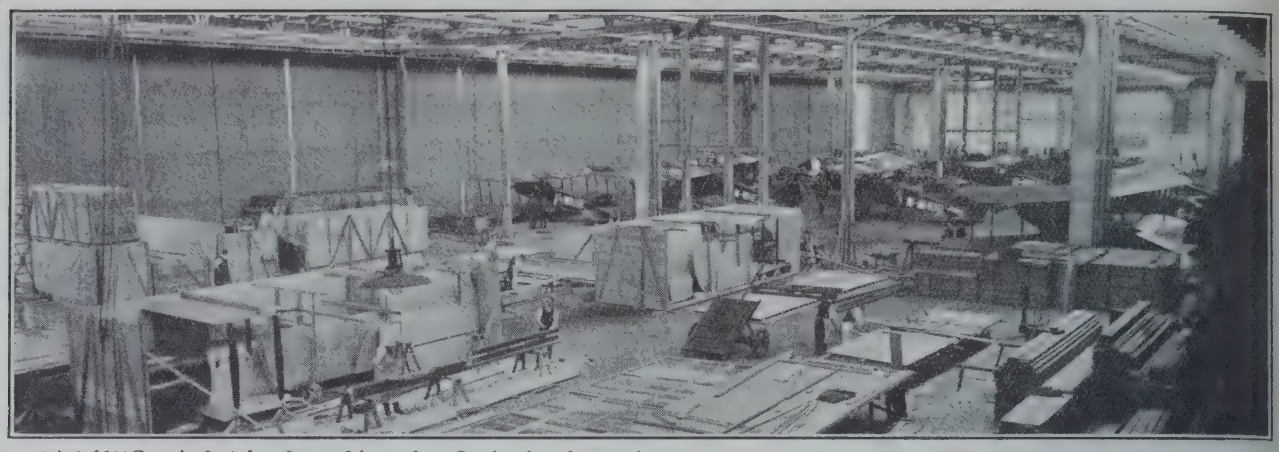
Its performance far surpasses that of any other aeroplane of its class throughout the world.

It is interesting to note that the Fairey "Fox" is fitted with the Fairey "Felix" D.12 Engine and with a Fairey-Reed Air-screw, both of which contribute largely towards the remarkable speed and efficiency obtained with this machine.

The Fairey Aviation Company Ltd.

Head Office and Works:
HAYES, MIDDLESEX.
Telegrams: "Airily," Hayes. Telephone: 136, 137, 138 Hayes, Middx.

Works also at:
HAMBLE, near SOUTHAMPTON.
Telegrams: "Airily," Hamble. Telephone: 17 Hamble.



PACKING.—A batch of machines for Spain in the various processes of packing in the works of A.D.C. Aircraft Ltd. at Waddon.

"Having acquired the manufacturing rights, designs and goodwill of the late Martinsyde Ltd. the A.D.C. have naturally produced a Martinsyde machine as the first of the new type machines it is intended to introduce. The Martinsyde A.D.C.1 single-seater Fighting Scout is fitted with the 385/425 h.p. air-cooled radial Jaguar radial type engine. The machine is known to have a very high speed, together with exceptional climb and manœuvrability.

"New engines produced under the expert design and supervision of Major F. B. Halford, well known in connection with his work in the design of the celebrated B.H.P. and Puma engines, include to the present the 120/140 h.p. Airdisco stationary air-cooled type, and the 27/60 h.p. Cirrus stationary air-cooled low-powered engine for installation in light aeroplane types.

"Both types of the above engines have proved entirely successful and have been adopted by British manufacturers. Particular interest in the Cirrus engine has been evidenced, not only in England, but all over the world, as it fills a long felt need for a practical, efficient and reliable light aeroplane engine that brings the light aeroplane out of the experimental stages into a sphere of practical utility.

"The A.D.C. have always evidenced the keenest interest in aviation sporting events, in which they have been represented either by direct entries or engines supplied, and they have supported and exhibited at all the principal International Salons and Expositions connected with aviation that have been held during recent years.

"This brief outline of an organisation that has perhaps proved unique in its successful administration of the distribution of aviation stocks, is the prelude to the part the Company is prepared to take in the development of the Industry, and the objective with which it is actuated in common with other British manufacturers. Continued research and experiment in co-operation with the use of finest material and the employment of high standards of workmanship, foreshadow what A.D.C. Aircraft Ltd. will be among the manufacturing companies who are maintaining and advancing the high prestige of British Aircraft throughout the world."

A Visit to Waddon.

On a day last week one had the pleasure of being taken all over the A.D.C. Aircraft premises at Waddon by Captain F. R. Walker, who is now in charge there, Major F. B. Halford, who is responsible for the firm's new engine work, and Mr. J. Kenworthy, the aeroplane designer. An enormous amount of disposal stock has disappeared from the premises since one's last visit.

It is interesting to know that all told, since the A.D.C. came into existence, they have sold and delivered about 1,500 machines and 3,000 engines which with spares have run to a total value of three and a half million pounds (£3,500,000). These have gone to practically every country in the World. And so far not one serious complaint has been received in connection with any of these sales. Which speaks well for the care with which the reconditioning is done.

In spite of these enormous sales there is still a vast quantity of material in stock. One saw stacks of fuselages of D.H.9s and S.E.5as and Avros and Martinsydes, and all stored in a most scientific manner so that practically no actual deterioration was taking place. It is true that some of them rather seemed to want dusting. But dusting the A.D.C. stock would be rather like cleaning the windows of the Crystal Palace. And anyhow a little dust cannot do any harm so long as the sheds are kept dry and warm.

In one shed was a vast heap of Avro under-carriages, which suggested that the Senior Officers of the R.A.F. must have been doing refresher courses on the Croydon Aerodrome alongside the Works.

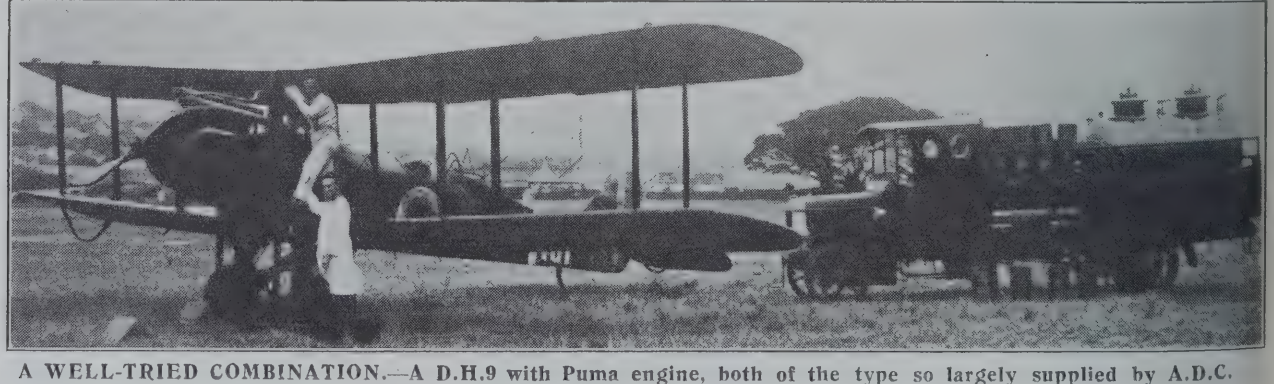
Astronomical Figures.

Perhaps the most immediately impressive part of the stores is the Engine Section, which, besides large stocks of quite useful engines, such as the Rolls-Royce Eagle VIII, the Puma, the Viper, Le Rhône and Clergêt, contains quite a lot of curiosities such as Atlantics and Tigers and Arabs and Hawks and even perhaps an odd Dragonfly or so, the names of which one hardly ever hears in these days.

Not long ago Major Halford, with his taste for figures, calculated roughly what the existing stock of engines of all sorts must have cost the British Empire taking them all at the price at which they were originally sold to the Government. The estimate works out at something like £25,000,000. Of course that includes engines which cost anything between £1,000 and £2,000 apiece and are now practically worthless besides engines which cost £1,000 apiece or less and are still worth several hundreds at the present market price.

The Spare Parts Store is equally astonishing when one comes to estimate what is really in it. The Ball Bearing Department alone has on its stock-sheets 240,000 separate and several ball bearings, ranging from the big thrust bearings of the biggest engines down to little things for windmill pumps and so forth. And in small parts the numbers reach what a German correspondent of this paper once called "astronomical figures."

In the armoury there are enough machine-guns and Scarff rings and gun sights and bomb sights and such things to start quite a comfortable young war.



A WELL-TRIED COMBINATION.—A D.H.9 with Puma engine, both of the type so largely supplied by A.D.C. Aircraft Ltd., being re-fuelled with the equally well-tried Shell Aviation Spirit from one of the well-known Shell tank-wagons.

ROLLS-ROYCE
AERO ENGINES
THE BEST IN THE WORLD

Result of the 'Famous Flights' Contest published in 'AIRWAYS,' of September, 1925

IN this competition readers were asked to vote as to the merits of six famous flights of recent years. The novel form of the contest aroused great interest, and several hundreds of entries were received from all over the country. The result of the voting places the six flights in the following order of merit:—

1. The Trans-Atlantic Flight by Alcock & Brown. (ROLLS-ROYCE engines.)
2. Cobham's 17,000 miles Flight to India and back. ('Puma' engines.)
3. The Ross-Smith 11,294 miles Flight to Australia. (ROLLS-ROYCE engines.)
4. The American Round the World Flight. (American 'Liberty' engines.)
5. The Airship R34's Voyage to America and back. (Sunbeam airship engines.)
6. Cmdr. Goble's 9,000 miles Flight round Australia. (ROLLS-ROYCE engines.)

It will be noted that three of these famous flights were made with ROLLS-ROYCE aero engines, and that all six flights were made by WATER-COOLED aero engines.

ROLLS-ROYCE LIMITED
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Among the curiosities in this department is a solitary example of the much-boomed Davis gun which was supposed to throw a shell out of one end while the recoil was taken up by a wad of dust-shot intended to disperse itself into the atmosphere from the other end. Quite a lot was thought of this gun at one time until somebody blew half his tail off with the recoil charge, or blew out the charge into the face of his next astern with dire results. One cannot vouch for which episode really settled the question, but thereafter the Davis gun became unpopular and it was never used on active service.

Still, most of this enormous stock is even now of quite considerable value and it is steadily being distributed over the World with generally beneficial results to the reputation of British aircraft.

A Public Benefaction.

The result of all the business which has been done abroad by the A.D.C. must be of distinct advantage to British Aviation, for, as already suggested, these sales were made in spite of competition from French and Italian firms which had Government assistance. The countries which could not afford to pay the price of brand new English aircraft and engines have paid a reasonable price for reconditioned disposals stock actually in preference to accepting machines from other countries practically for nothing.

The buyers in the majority of cases have been so well satisfied with our disposals machines that they have definitely been educated up to paying the price of brand new machines. And the highly efficient sales organisation of the A.D.C. has itself acted as agents for the actual British manufacturers. In fact in some cases, as the result of business thus introduced, the designing firms have arranged for their machines to be manufactured abroad under licence. Thus it may be seen that British designers have definitely benefited from the A.D.C.'s operations.

It is also well to remember that during the period after the signing of Peace in 1920 the stock which was held by the A.D.C. was actually a great national reserve of aircraft and material in case of a fresh outbreak of war.

One of the first serious jobs which the A.D.C. did was to overhaul and recondition a number of Liberty engines required for D.H.9as to increase the supply of materiel which the R.A.F. needed for certain operations which took place after the first wholesale demobilisation and cutting down of the Air Force. This contract was carried out to the entire satisfaction of the Air Ministry, the Aeronautical Inspection Department, and the squadrons which received the machines. The A.D.C. were, in fact, personally complimented by several officers in charge of machines fitted with these engines.

The standard of work carried out by the A.D.C. has been uniformly high. Naturally all the material supplied to the Air Force has been subject to A.I.D. inspection. But apart from that the firm's own inspection system has been organised precisely on the lines of the A.I.D., the standard of work demanded by the firm being identical with A.I.D. requirements. Consequently the A.D.C. Inspection Department has been definitely approved by the Air Ministry.

The Design Department.

Quite early in its existence the A.D.C. had to form a design department of its own, as it was called upon to make a large number of interesting conversions. Among these wa the fitting of Mercédés engines into D.H.9s, Renault engine into Avros, and Hispano-Suizas into Bristol Fighters. A D.H.9a was also altered to take a 450 h.p. Napier Lion an another was altered to take a Rolls-Royce Eagle VIII. Ye another conversion was that of a two-seater D.H.9 into three-seater with a luggage compartment for use by Norther Air Lines between Liverpool and Belfast.

These and a number of other conversions called for quit as much knowledge of aircraft design as if the work had bee done on a new and original machine. And it is fairly safe t say that no firm has had quite as much experience of dealin with assorted types of service aircraft and with their main tenance as the A.D.C.

As this department expanded the firm engaged Mr. Joh Kenworthy who during the War was in charge of the Austi Company's drawing office in Birmingham.

Very shortly after the end of the War Mr. Kenworthy de signed the Austin Whippet, which one may safely say was th first of all successful light aeroplanes. It was built entirel of steel tubing and the wings were built with steel tub trusses instead of bracing-wire, Mr. Kenworthy's idea bein that the owner pilot would thus have no trouble with adjust ing rigging.

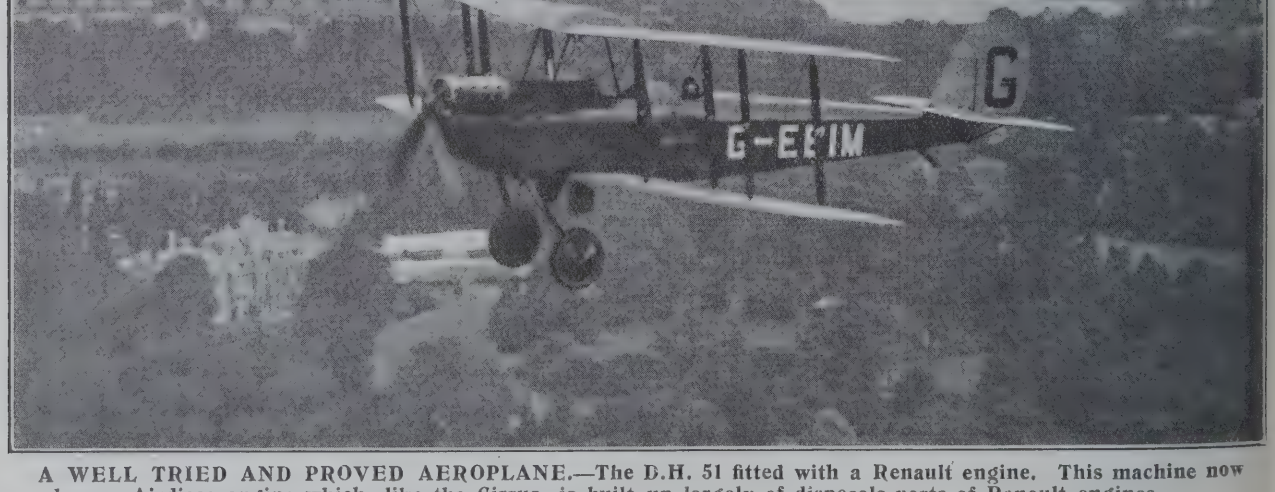
Unfortunately the only engine available for the machine a the time was a pre-war type of Anzani which constantl suffered from valve trouble and other defects. Consequently although the actual aeroplane as then produced was fully u to the most modern standard of light aeroplanes in desig and distinctly ahead of most of them in construction, i arrived just about four years too soon.

If it had been produced in 1924 or thereabouts it would have caused quite a sensation among those who are just be ginning to take an interest in light aeroplanes. And to-da it might be possible to find an engine which would do i justice. So far as one knows only one of the type is stil in use and that belongs to Flt. Lt. Soden, R.A.F., who use it for touring about the country just as he would use a car.

Fifty of these Whippets were put in hand, and one gather that the last of the beautiful steel fuselages which were buil for them are stuck up on end in a row as a pergola in a Birmingham garden. But, anyhow, to Mr. Kenworthy be longs the credit of having designed the first really good all-steel light aeroplane.

Since he has been at the A.D.C. Mr. Kenworthy has no yet had an opportunity of designing an entirely origina aeroplane. But one has hopes of seeing him do so, for one believes that a new design of his would be yet another ste forward in the progress of British aviation. Meantime he is doing very useful work.

A year or two ago the A.D.C. acquired the manufacturing rights and good will of the Martinsyde Company, whose F.4s, designed by Mr. George Handasyde in the last year o the War, had undoubtedly the highest all-round performance of any machine of their class. Recently one of the Martin sydes was altered by Mr. Kenworthy to take a Jaguar engine and in spite of its seven-year-old design the machine proved to be actually faster than the standard R.A.F. single-seat fighters with the same engine. Which seems pretty conclu sive evidence of the respective abilities of Mr. Handasyde and Mr. Kenworthy.



A WELL TRIED AND PROVED AEROPLANE.—The D.H. 51 fitted with a Renault engine. This machine now has an Airdisco engine which, like the Cirrus, is built up largely of disposals parts of Renault engines.

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A.D.C. Engines.

On the engine side Major Halford has done very good work for the A.D.C. and for aeronautical progress in this country. Major Halford, whom one first met as an instructor at the Bristol School of Flying in 1912 or so, was the H. in the B.H.P. (Beardmore-Halford-Pullinger) engine which he developed *from* the pre-war Austro-Daimler and later *into* the famous Puma.

His first effort at Waddon was to produce the Airdisco engine, which is actually an adaptation of the old 80 Renault. The original Renault cylinders are used together with the Renault crankshaft and crankcase. Improved valves and valve gear and pistons have been fitted, with the result that the engine gives 120-140 h.p. as against the Renault's 80 h.p.

Almost simultaneously with the Airdisco he produced the Cirrus, which consists of four Renault cylinders and an entirely new crankshaft and crankcase. The Cirrus gives a good reliable 60 h.p. and it has already more than justified its existence by making it possible for the de Havilland Company to produce that excellent light aeroplane, the Moth, which is now accepted all over the World as the best light aeroplane.

As most people know, it has been adopted as the standard equipment for the light aeroplane clubs which have been formed with the assistance of the Air Ministry. And one hopes that, now that the Moth has proved itself to have a performance as a two-seater about equal to that of most standard training machines, other firms will see what they can do with the help of the Cirrus engine towards producing really useful light aeroplanes.

Some other very interesting engine work is being done by Major Halford for A.D.C.A. Ltd. but at the moment one is not at liberty to say anything about it, beyond remarking that if the resultant product passes the tests to which it is being subjected it also will prove to be a valuable step forward in our aeronautical progress.

The Instrument Department.

Another department in which the firm is doing excellent work is in its testing and reconditioning of aeronautical instruments, such as revolution indicators (called by highbrows tachometers), air-speed indicators, and pressure gauges of all sorts. The machinery which has been devised for testing these various instruments is far too complicated to describe here, and one can only say that it is performing extremely valuable service.

One saw quite a number of instruments and gauges checked by this testing machinery and the results were simply appalling. Revolution indicators of highly reputable makes showed errors of 10 or 20 r.p.m. in the neighbourhood of 1,000 r.p.m. Air-speed indicators registering 60 m.p.h., which is about the stalling speed of a good many aeroplanes, were proved to do so when the real air speed should have been only about 55 m.p.h.

Which means that a pilot relying on his rev. indicator would probably try to take off when his engine was giving far less than the proper number of revs. and a pilot trying to land and trusting to his air-speed indicator would probably find himself stalling and nose-diving when the instrument was showing his proper flying speed.

A staff of skilled instrument makers is maintained to adjust all these instruments before they are delivered by the A.D.C.A. Ltd. But one would like to suggest that proper checking machinery of a similar nature should be installed in all squadron workshops and that instruments should be tested at frequent intervals. It strikes one that quite a number of the accidents, fatal and otherwise, which happen in the R.A.F., may quite possibly be due to defects such as one has described.

A.D.C.A. Proposals.

So far the A.D.C. Aircraft concern has not been recognised by the Air Ministry as a designing and producing firm. Very wisely, in order to maintain the Aircraft Industry on a sound financial basis, as Mr. Churchill recommended years ago, the Air Ministry decided to recognise only a limited number of firms, about twenty in all, as suitable to produce aircraft and aero engines for the Service. But certainly when a firm shows the enterprise and initiative which the A.D.C. has done in the past it should be entitled to take a hand in whatever is being done for the Air Ministry.

It seems rather a pity that there cannot be some sort of regular competition among aircraft firms for a place among the twenty recognised firms, much as Association Football teams have to compete for their title to play in First or Second League matches.

Undoubtedly the more that brains are encouraged to compete for Air Ministry orders the quicker will be the development of aviation generally. And though the Air Ministry's policy can be justified on a number of grounds the fact remains that lack of competition does prevent new blood from entering a business where it should be strongly encouraged.

Possibly this suggestion may be unpopular with some firms in the Aircraft Industry but no firm which is confident of the ability of its design department and commercial department need ever fear competition whether from abroad or from new and enterprising firms in this country. Those who fear competition can only be those which are conscious of their own inefficiency.

Home Work.

Quite apart from what the A.D.C. Company has done in the way of educating foreign Powers it has done quite a great deal at home. During the recent Exhibition at Wembley the Air Ministry, desiring to make some sort of an aeronautical exhibit for the education of the British Public in what our American relatives call "air-mindedness," came up against the unfortunate fact that the Society of British Aircraft Constructors were unable to stage a worthy exhibit, simply because nobody could afford to put up-to-date machines and engines into the Exhibition and leave them lying there unprofitably for six months on end. The A.D.C. immediately offered to assist, and staged a couple of commercial machines as well as preparing at their own cost a Martinsyde machine and Puma, Cirrus and Airdisco engines thus making the stand really attractive and to some extent representative of British aviation.

On the sporting side also the firm has done excellent work. In the various King's Cup Races, and in a number of other flying events at Croydon and at Lympne, the A.D.C. has gone to quite considerable expense, and individual members of the firm have gone to a vast amount of trouble to prepare, enter and fly machines. In fact without the A.D.C. entries, and without machines lent for the competitions at a purely nominal price to sportsmen who could not afford to buy and maintain racing aeroplanes, a good many of the Aero Club competitions would have been almost fiascos.

Quite apart from that, Colonel Darby himself, in spite of all his business ties, has put in an enormous amount of work as a member of the various committees of the Royal Aero Club and as an official at flying meetings and so forth. His last effort in this direction was a trip to the United States entirely at his own expense to give a helping hand to the British Team in the Schneider Trophy contest. Those who were there say that he was in fact the dynamic force behind the team, the members of which turned to him when in any sort of trouble.

Viewed from any standpoint the A.D.C. has thoroughly justified its existence. It has saved the British Taxpayer well over a million of money. It has paid half a million anyhow in wages. It has provided cheap material which in itself has made possible work which has provided a lot more money in wages. It has enhanced the reputation of British aircraft abroad. It has educated the British Public. And it has helped the sport of aviation. Consequently one feels justified in saying that Colonel Darby, and his able assistant Major J. Stewart, in Kingsway, and all his staff at Waddon deserve well of the Aeronautical Community.—C. G. G.



A REAL AMATEUR.—Dr. Whitehead Reid of Canterbury, one of the very numerous Old Tonbridgians who have proved specially successful pilots, on his S.E.5a, adapted for an 80 Renault engine. This S.E. was one of the big stock held by the Aircraft Disposal Co. Ltd.

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NEXT YEAR'S SCHNEIDER TROPHY CONTEST.

One month has alrealy passed since the Schneider Trophy contest was lost. So far as Great Britain is concerned the month has been entirely wasted. The Air Ministry have come to no decision as to whether or no they will order machines for next year, or not or otherwise.

A meeting was held at the Royal Aero Club on Friday last, when the members of the returned Team, the Schneider Committee, and others concerned, were present. In accordance with Schneider habits, the meeting was strictly secret, but it is understood that certain proposals were forwarded to the Air Ministry, whose reply is expected about next March.

In connection with the statement in last week's AEROPLANE that seaplanes may be expected to do 270 m.p.h. next year, it is interesting to learn that the designs for a Schneider racer have already been produced by a competent designer, with an estimated top speed of 266.5 m.p.h.

It may therefore be taken that 270 m.p.h. is the speed at which to aim, and nothing less will do. Therefore it is all the more imperative to get on with the job of building machines and training pilots without further delay. And yet, of course, there will be plenty more delay.

While we rest on our laurels, the Curtiss people are again hard at it, and tests are to be made with the R.3.C.2 rigged as a monoplane and cleaned up generally.

It is understood that our Gloster-Napier IIIs are to be fitted with wing radiators and more suitable airscrews, when they should make at any rate quite valuable training machines.

Napiers have a new engine with reduced frontal area nearly ready, and Rolls-Royce have a racing version of the Falcon and the Condor almost ready for test. So now it is up to the Air Ministry and the Aircraft firms. No doubt the latter will get into action when the Air Ministry gives its long-delayed word to go.—G. D.

THE AIR MINISTER'S OMISSIONS.

In a speech broadcast from London to all stations on Tuesday, November 17, Sir Samuel Hoare said that the Air Ministry were doing their utmost to stir up interest in aviation in England he wanted everyone to take a real interest.

For this purpose he had organised the Cairo-Kano-Cairo journey and early next year there will be an organised flight by R.A.F. machines to the Cape. He also spoke with enthusiasm of the value of Mr. Cobham's flight to the Cape but did not state that the Air Ministry have failed to support the flight financially.

Now all these flights have been, are, or may be, very fine performances indeed, but one doubts much whether they will create a vast enthusiasm among the public coming as they do after Colonel the Marchese di Pinedo's greatest of all long-distance flights, and the flight of the U.S. Army Aviators round the World.

If Sir Samuel Hoare is really anxious to enthuse the public let him concentrate on next year's Schneider Trophy Contest. The enormous interest taken by the public in the event this year is enough to show that the regaining of the Trophy by Great Britain would arouse enthusiasm in flying.

The money spent on journeys of much less importance than others already accomplished will be much better spent on making machines and training pilots for a serious attempt to win back the Schneider Trophy next year.

Further enthusiasm can be raised moreover if the Air Minister will put his secrecy department in a lethal chamber so that the British public whom he is so anxious to enthuse may be told something of modern British machines instead of trying to make the Press make the public enthuse over the few out-of-date machines now permitted to bask in the sunshine of its "open list" and the "part publication" list, most of which naturally are obviously inferior to the much-boomed foreign products about which there is no secrecy.

If he will do something on these lines he will find that the public will take a very lively interest in flying.—G. D.

THE MARCHESE DI PINEDO.

It is understood that Colonel the Marchese di Pinedo, who has just completed the world's longest flight, will pay a short visit to England at the end of next week.

Presumably the Royal Aero Club will stage some sort of official function so that the distinguished aviator may receive adequate honours after so memorable a performance from British aircraft people.

THE FLIGHT TOWARDS THE CAPE.

Mr. Alan J. Cobham left Croydon at 10.30 a.m., on Monday, Nov. 16, on a flight to Cape Town, accompanied by Mr. A. B. Elliott and Mr. Emmott. He flew non-stop to Lympne, where he landed to look at his oil pressure. Finding this all right, he flew on to Paris, where he stayed the night.

He flew to Marseilles next day with a stop at Lyon. At Marseilles he was delayed by weather.

On Thursday he resumed his flight, and reached Pisa.

On Friday he reached Taranto, and flew thence to Athens on Saturday.

On Tuesday one was told by the De Havilland Co. Ltd. that he was still delayed at Athens while adjustments were being made to his Jaguar engine.

THE RED AIR FIGHTER.

The Times correspondent in Berlin, in a message dated Nov. 19, states :—

The body of the Baron von Richthofen, the German airman who was shot down in France in April, 1918, and was buried there, reached Berlin late last night and was borne to the Gnadenkirche, where it lies in state. With it was brought the wooden cross from the cemetery at Fricourt where it was buried.

The coffin was followed to the church by a guard of honour of the Reichswehr and former comrades in uniform, who had belonged to the Richthofen "circus" [a term by which his squadron was generally known]. Many thousands lined the route. The coffin rests in the church beneath a heap of wreaths placed there by the 4th Machine Gun Company of the 9th (Prussian) Infantry Regiment (which preserves the traditions of the German Flying Corps), by the various airmen's associations, officers' associations, students' corps, relations, and public admirers. On the coffin is a pillow covered with the dead airman's orders and decorations, together with an officer's sword of the 1st Uhlan Regiment, his former unit.

So passed to his last resting place one of the most gallant and honoured of our former enemies. There is satisfaction in recording the fact that among the wreaths was one from officers formerly of the Royal Flying Corps, Royal Naval Air Service and Royal Air Force, at present residing in Germany.



THE HOMECOMING OF VON RICHTHOFEN.—The body of the late Rittmeister Baron Manfred von Richthofen being escorted through Berlin for burial. President von Hindenburg and von Richthofen's mother can be seen among the mourners.

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THE ROYAL AIR FORCE.

The London Gazette

Nov. 17.

GENERAL DUTIES BRANCH.—The following Plt. Offs. are promoted to the rank of Flg Off. :—C. U. G Tristram (Sept. 8); J. M. Cohu, A. D. McDowall, H. F. Luxmoore (Oct. 15); G. B. M. Rhind (Nov. 15).

The following Plt. Offs. on probation are confirmed in rank (Oct. 1) :—H. R. Bardon, M. Brunton, E. L. Cowan, I. G. E. Dale, F. W. Field, F. H. Hannaford, W. J. Kelly, G. J. C. Mahony, R. Matheson, T. H. Perry-Keene, V. C. Taylor, R. R. Turner.

Flg. Off. L. C. Lewis resigns his S.S. comn. (Nov. 18); Flt. Lt. C. Attrill, M.B.E., is placed on the retired list (Nov. 17).

The following Flying Officers are transferred to the Reserve, Class A :—A. R. M. Brain (Nov. 15); F. P. Adams (Nov. 18).

MEDICAL BRANCH.—The following are granted S.S. comns. as Flg. Offs. for three years on the active list, with effect from and with seniority of, the dates indicated :—G. M. Anderson, M.B. (Oct. 28); B. L. Edwards, M.B (Oct. 28). W. D. McKeown, M.B. (Nov. 3).

Flg. Off. R. W. White is promoted to the rank of Flt. Lt. (Nov. 12).

RESERVE OF AIR FORCE OFFICERS.—The following are granted comns. as Plt. Offs. on probation, General Duties Branch :—CLASS A.—R. N. Bullock, H. W. Knott (Nov. 10). (Substituted for the notification in the *Gazette* of Nov. 10, 1925.)

Plt. Off. J. H. Taylor is confirmed in rank (Nov. 15). Plt. Off. R. W. Jones is confirmed in rank (July 9). (Substituted for the notification in the *Gazette* of Nov. 10, 1925.) Flt. Lt. A. Roberts is transferred from Class B to Class C (Nov. 12). The comn. of Plt. Off. on probation A. N. Wells is terminated on cessation of duty (Oct. 13).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—To be Sq. Ldr. (Hon. Wing. Cdr.) :—No. 600 (City of London) Sqdn. :—A. W. H. James, M.C. (Wing. Cdr., Retired List, R.A.F.), to command the Sqdn. (Nov. 17).

Appointments.

Week ending Nov. 23.

GENERAL DUTIES BRANCH.—Group Captain I. T. Courtney, O.B.E., to R.A.F. Depot on transfer to Home Estab., 17/10.

Wing Commander A. J. Miley, O.B.E., to H.Q., Coastal Area, 2/11.

Squadron Leaders G. Blatherwick, to R.A.F. Depot on transfer to Home Estab., 25/10. G. F. Breese, D.S.C., to No. 2 Arm. Car Coy., Palestine, 17/10. P. B. Hunter, to R.A.F. Depot on transfer to Home Estab., 30/10. A. L. Gregory, M.B.E., M.C., to R.A.F. Depot on transfer to Home Estab., 9/11. J. H. Simpson, to R.A.F. Depot on transfer to Home Estab., 17/10.

Flight Lieutenants A. Ferris, to R.A.F. Cadet College, Cranwell, on transfer to Home Estab., 30/10. R. M. C. Macfarlane, M.C., and R. Grice, D.F.C., to R.A.F. Depot on transfer to Home Estab., 30/10. J. M. J. C. J. I. Rock de Besombes, to C.F.S., Upavon, on transfer to Home Estab., 30/10. A. T. S. Leguen de Lacroix, to R.A.F. Depot on transfer to Home Estab., 25/10. J. F. T. Barrett, D.F.C., to Air Ministry, 26/11. H. T. Lydford, A.F.C., to No. 2 F.T.S., Digby, on transfer to Home Estab., 30/10. The undermentioned Flight Lieutenants are all posted to R.A.F. Depot on transfer to Home Estab. with effect from 30/10 :—H. Cockerell, O.B.E., R. A. Courtney, M.B.E., T. E. Salt, A.F.C., F. St. J. Woollard, A.F.C., T. P. Y. Moore, F. McB. Paul, G. E Gibbs, M.C., L. H. Browning, M.C., D.F.C., C. W. Attwood, J. Bussey, H. E. Searson, D.F.C., J. K. A. Jeakes, D.F.C. A. Chapman and V. R. Scriven, A.F.C., to R.A.F. Depot on transfer to Home Estab., 17/10.

Flying Officers J. de la P. B. Preston, D. H. Geeson and A. W. Crees, to R.A.F. Depot on transfer to Home Estab., 17/10. R. S. Bruce, M.B.E., J. F. Clark, A. Page, H. Little and P. D. Baker, to R.A.F. Depot on transfer to Home Estab., 30/10. J. W. Jean, D.S.M., to No. 4 Apprentices' Wing, Cranwell, 16/11. B. J. J. Nimmo, to No. 2 Arm. Car Coy., Palestine, 17/10. R. H. W. Empson, to R.A.F. Depot on transfer to Home Estab., 17/10. H. T. Satterford and F. W. Long, to R.A.F. Depot on transefr to Home Estab., 30/10. G. E. Litton, to No. 1 School of T.T. (Apprentices), Halton, on transfer to Home Estab., 18/11. T. H. French, D.F.C., to C.F.S., Upavon, on transfer to Home Estab., 30/10. W. F. Langdon, to No. 1 S.D., Kidbrooke, on transfer to Home Estab., 30/10. O. B. Swain, to No. 99 Sqdn., Bircham Newton, 12/11.

MEDICAL BRANCH.—Wing Commanders B A. Playne, D.S.O., M.B., B.A., to R.A.F. Depot pending disposal on transfer to Home Estab., 17/10. W. W. Shorten, F.R.C.S. (E), to R.A.F. Depot pending disposal on transfer to Home Estab., 23/20.

Squadron Leaders T. J. Kelly, M.C., M.B., B.A., to R.A.F. Depot on transfer to Home Estab., 17/10. J. T. T. Forbes, to R.A.F. Depot on transfer to Home Estab., 30/10.

Flight Lieutenants A. E. Barr-Sim, M.B., G. Kinneir, T. J. D. Atteridge and J. C. Osburne, M.B., to R.A.F. Depot on transfer to Home Estab., 17/10. H. McW. Daniel, M.D., to Aircraft Depot, Iraq, 21/10. V. H. Smith, to Heliopolis Details, Egypt, 24/10. Flight Lieutenant (Dental) D. H. W. Williamson, to R.A.F. Depot on transfer to Home Estab., 17/10.

Flying Officers L. C. Palmer-Jones, M.B., to C.F.S., Upavon, 17/11. R. L. C. Fisher, M.B., J. Parry-Evans, and F. L. White, to R.A.F. British Hospital, Iraq, 21/10. H. C. Patterson and B. Pollard, to Station Commandant, Hinaidi, 21/10. Flying Officer (Dental) H. I. Clapperton, to R.A.F. Depot on appointment to a Temp. Comn., 2/11.

STORES BRANCH.—Squadron Leader G. Stevens, O.B.E., to R.A.F. Depot on transfer to Home Estab., 17/10. Flying Officers R. F. Wilson, to No. 4 Stores Depot, Ruislip, instead of to Record Office as previously notified, 9/11. E. V. Bashford, to R.A.F. Depot on transfer to Home Estab., 25/10. V. B. Ranford, to R.A.F. Depot on transfer to Home Estab., 30/10.

ACCOUNTANT BRANCH.—Squadron Leader T. C. Miller, M.C., to R.A.F. Depot on transfer to Home Estab., 30/10. Flight Lieutenants F. W. Arthurton, to R.A.F. Depot on transfer to Home Estab., 30/10. R. F. C. Metcalfe, to R.A.F. Depot on transfer to Home Estab., 17/10. Flying Officer A. C. Lobley, to R.A.F. Depot on transfer to Home Estab., 17/10.

Waziristan Awards.

Air Ministry, Nov. 20, 1925.

ROYAL AIR FORCE.

The King has been graciously pleased to approve of the undermentioned rewards in recognition of gallant and distinguished service in connection with the operations carried out by the R.A.F. in Waziristan, Mar. 9, 1925, to May 1, 1925 :—

Awarded the Distinguished Service Order.—Sq. Ldr. Arthur John Capel, D.F.C.

Awarded the Distinguished Flying Cross.—Flt. Lt. John Wakeling Baker, M.C. Flt. Lt. William Neville Cumming. Flg. Off. Reginald Pyne.

Awarded the Distinguished Flying Medal.—90741 Sjt. (Pilot) George Edwin Campbell. 84631 Sjt. (Pilot) Ralph England Hawkins. 739[illegible] Sjt. Arthur Dixon Rutherford. 86779 Cpl. Reginald William Richard Robins. 327032 L-AC. Alfred William Walmsley.

The names of the undermentioned have been brought to notice for distinguished service rendered during the operations carried out by the R.A.F. in Waziristan, Mar. 9, 1925, to May 1, 1925, by His Excellency General Sir Claud W. Jacob, K.C.B., K.C.S.I., K.C.M.G., Commander-in-Chief in India, in the Despatch dated June 23, 1925 :—

ROYAL AIR FORCE.

Chase, Flg. Off. Wilfred Arthur. Dashwood, Flg. Off. Edward John (killed). Dollery, Flg. Off. Charles. Garraway, Flg. Off. Frederick Frank. Haslam, Flt. Lt. James Alexander Gordon, M.C., D.F.C. Hayter-Hames, Flg. Off. Noel Cecil (killed). Pink, Wing Cdr. Richard Charles Montagu, C.B.E. Savery, Flt. Lt. Robert Churton, D.F.C. Stevens, Flt. Lt. Cecil Alfred, M.C.

Brown, No. 159387 Cpl. William Joshua Leslie. Butcher, No. 314957 F-S. William George Henry. Jones, No. 345362 L-AC. Albert John. Reeve, No. 337185 Cpl. Sidney Lancelot. Small, No. 334124 Cpl. (A/Sjt.) George Robert, M.M.

A Fatal Accident.

The Air Ministry regrets to announce that as a result of an accident at Leysdown, near Eastchurch, to a Grebe machine, of the Armament and Gunnery School, Eastchurch, on Nov. 20, Plt. Off. Cecil William Montague Smith, the pilot and sole occupant of the aircraft, was killed.

Accountant Officers.

The Air Ministry announces that the following candidates for permanent commissions in the Accountant Branch of the R.A.F. have been declared successful as a result of a competition held by the Civil Service Commissioners, subject in certain cases to further medical examination :—

D. C. Stone, London; C. L. Dook, Frodingham, Lincs.; H. R. Withers, London; A. E. Fairs, Swansea; J. P. Cave, London; D. Sender, London; J. A. Stephenson, Worcester; A. L. Derry, Wellington, Salop; K. A. Jackman, Southampton; W. F. Quilliam, Manchester; J. Lambie, Aylesbury; H. Crowther, Bacup; and H. L. Hannam, Rotherham.

It is expected that a small number of additional appointments to commissions may be made during 1926 on the results of this competition.

The Cairo to Kano Flight.

The Service flight from Cairo to Kano and back under the command of Sq. Ldr. A. Coningham, was completed successfully on Nov. 19 at 16.45 hours.

The machines arrived at Wady Halfa from Khartoum on Nov. 18, and left Wady Halfa at 06.45 hours on Nov. 19. Since their departure from Helwan on Oct. 27 they have flown 5,600 miles.

The Times correspondent in Cairo, in a message dated Nov. 20, states :—

Air Vice-Marshal Sir Oliver Swann, commanding the R.A.F., Middle East, has pointed out that the chief interest of the Trans-African flight from Cairo to Kano, in Nigeria, and back lies in the fact that standard service machines were used and they kept to a set programme, drawn up before their departure, for both outward and return journeys, and in the fact that the machines returned one day before the scheduled date.

He considers that the flight is a demonstration of the possibility of sending out a formation of aircraft on a definite time-table, just as other arms are sent on a route march, knowing that they will arrive at certain halts at fixed times. The machines behaved admirably, giving no trouble throughout.

Squadron Leader Coningham described the immense interest aroused by the flight in Nigeria. After they had crossed the Nigerian border on Nov. 1 every town was crowded with people who had come in from the surrounding districts to see the aircraft pass, while on the roads masses of Nigerians had been waiting since dawn. They showed great excitement, some trying to chase the low-flying aeroplanes. Kano aerodrome, which is about 700 yards square, was entirely surrounded by troops holding back a crowd of inhabitants 12 deep, and at Kaduna, where the racecourse had been cleared as an aerodrome, great enthusiasm was aroused when eight chiefs were taken up. At Maidugari also, on the return journey, three local chiefs were given trips. Some of the natives had made a 14 days' march to Maidugari in order to see the machines.

A Service Expedition.

The Times correspondent at Cairo in a message dated Nov. 17 states :—

Preparations are now being made for the Royal Air Force flight from Cairo to Cape Town and back. The party will leave on Mar. 6.



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MARTINSYDE F4.
(Engine: 300 h.p. Hispano.)

2 SEATER:— D.H.9.
(Engine: 240 h.p. Siddeley "Puma.")

SEAPLANE:— D.H.9 SEAPLANE.
(Engine: 240 h.p. Siddeley "Puma.")
Etc., etc.

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and is due back in Cairo about June 14. The machines used will be four Fairey III.D seaplanes (450 h.p. Napier engines), fitted with land chassis and tropical radiators.

The route is as follows :—Cairo, Assiut, Aswan, Wadi Halfa, Atbara, Khartum, Kosti, Malakal, Mongalla, Nimule, Jinja, Kisumu, Shirati, Mwanza, Tabora, Abercorn, Ndolo, Broken Hill, Livingstone, Buluwayo, Palapye, Pretoria, Johannesburg, Bloemfontein, Kimberley, Victoria West, Beaufort West, and Cape Town, where the party will stay for ten days before the return journey is begun.

Army Co-operation.

The Times of Nov. 20 states :—

A course of instruction for majors and captains will be started on Tuesday at the Royal Air Force School of Army Co-operation, and will last for one month. The link between the air and land forces is a subject of constant study, and is being strengthened and developed on most modern lines.

The W.R.A.F. Affair.

The Lady Maud Hoare has kindly consented to open, on Dec. 5, a Christmas Fair, organised by the Old Comrades' Association of the W.R.A.F. in aid of the Association's Benevolent Fund. The Fair will be held at St. Andrew's Hall, Ashley Place, Victoria Street.

An R.A.F. Association in Jersey.

An R.A.F. Association has been formed in Jersey for officers and men who served in the R.F.C., R.N.A.S., or R.A.F. The idea originally was to organise a reunion of flying men in the island once a year, and a notice was inserted in a local paper inviting those interested in the scheme to meet on a date appointed. No less than fifty accepted the invitation.

Mr. J. C. C. Taylor (formerly of the Berkshire Aviation Co.), who is the moving spirit in the enterprise, took the Chair and explained the object of the meeting, and asked those present to put forward suggestions. The points decided upon were that all ex-Service ranks of the R.F.C., R.N.A.S., or R.A.F. should be eligible, and that the annual subscription should be 2s. 6d.

It is hoped to acquire a club room, with aviation periodicals, for use of the members, and to hold a re-union dinner every year. It is also the aim of the association to help members in financial distress, either through illness or unemployment, and to give them such support as the club can afford.

A castle very much in the air at present is a scheme to open their own light aeroplane club, though Jersey affords but little ground suitable for aerodromes.

With such an enthusiastic response to their suggestion the Committee is full of bright hopes for the future, and the Hon. Secretary, Mr. V. Simmons, 3, Broad Street, St. Helier, Jersey, will be pleased to hear from intending members.

On Armistice Day the members of the Association went together and placed a wreath to the memory of the dead of the Flying Services on the Jersey War Memorial.

R.A.F. SPORTS AND PASTIMES.

Association Football.

The results of the first round of the Junior Cup Competition were as follows :—Calshot beat Gosport 5—1, Lee-on-Solent beat Tangmere 3—2, Andover beat Upavon 2—0, Old Sarum beat Netheravon (No. 11 Sqdn.) 4—1, Northolt beat Biggin Hill 2—1, Ruislip beat Kenley 3—2, West Drayton beat Kidbrooke 3—1, Hawkinge beat Eastchurch (207 Sqdn.) 4—2, Martlesham Heath beat Henlow (23 Sqdn.) 3—0, Duxford beat Henlow (43 Sqdn.) 3—1, Donibristle—a bye, Digby beat Spittlegate 2—0, Sealand beat Shrewsbury 1—0.

Worthy Down, London Units and Felixstowe were byes.

Oxford University v. R.A.F. (Association).

Oxford University beat the R.A.F. at Oxford on Nov. 21, by 3 goals to 2.

The following account of the game is taken from *The Times* :—

Considering that the Royal Air Force have had only half-a-dozen games, their team work was admirable. Their forwards have pace and an excellent understanding, and Mason and Flg. Off. Williams would hold their own in any company. Kirk, who shot the two goals, was not an ideal centre-forward, as he was apt to try too much, and in this way threw away many openings made for him by Williams and Bishop. Dickson and Pennicott played extremely well at half-back, and Owens, the right back, kicked strongly and showed judgment in the tackle. Both goalkeepers made some clever saves.

The game went in favour of the University at the start, and after a quarter of an hour Smith got to a centre from Chadder to score the first goal. Shortly afterwards German sent Scicluna through with a beautiful pass between the two Air Force backs. It was a clear run-through, but Scicluna wasted the opportunity by hesitating, and then sending an erratic pass to his wing-partner. Then followed the second Oxford goal—a clever movement, started at the half-way line. Scicluna held the ball sufficiently long to draw the defence, and then shot it out to Bush. The Oxford left wing took the pass in his stride and centred on the run, with the defence and attack all facing the Air Force goal. The ball came across at top speed, and Fretwell was the unfortunate player to receive it; all he could do was to deflect the ball, which went into the net, giving Hadley not the slightest chance.

For the first quarter of an hour in the second half the Air Force forwards were attacking nearly the whole time. Harlow made one or two very fine saves, and the two Oxford backs, Ashton and Hills, were frequently able to beat the Air Force forwards by clever tackling. However, they were not able to prevent Kirk from shooting into an open goal, with Harlow on the ground as the result of a collision with Williams. This Air Force success was thoroughly deserved, and little surprise was left when Kirk, after harassing the two Oxford backs, and then slipping between them, made the scores level with a hard shot. Harlow partially stopped the shot, which went off his arm into the net. The winning goal was scored for Oxford by Smith ten minutes from the end. Chadder made the opening, slipped the ball over to Smith at the right moment, and the Oxford centre having cleverly placed himself, easily beat Hadley.

The match against Cambridge University will be played at Cambridge on Nov. 26 at 2.30. Owing to the proximity of Duxford there should be a good turn out of spectators for this match.

Boxing.

A competition at 10 st. 4 lbs. open to the R.A.F. was included in the tournament organised by "A" Division Metropolitan Police, which took place at the Stadium Club on Nov. 12. The boxing, if not very scientific, was very keen and bright.

1st Series : AC.2. Page (Manston) beat AC.1. Meredith (Bircham Newton), who retired in the 2nd round. AC.1. Deamer beat AC.1. Cassin (Bircham Newton) in the 2nd round.

Byes : Cpl. Broadway and AC.2. Seaman (Uxbridge), L-AC. Harvey (Netheravon), AC.s Foreman, Holiday and Fuller (Halton).

2nd Series : Broadway beat Seaman on points, Harvey beat Foreman on points, Fuller beat Holiday on points, Page walked over as Deamer retired owing to an injured hand.

Semi-finals : Broadway beat Harvey on points; Page beat Fuller in the first round, the referee stopping the contest.

Final : Page beat Broadway on points.

A match took place on Oct. 28 at Harlescott between the M.T. Repair Depot, R.A.F., and the Depot, The King's Shropshire Light Infantry, and resulted as follows :—

Bantams.—Pte. Bryan (K.S.L.I.) beat AC. Gosling; L-AC. Barker beat Pte. Earnshaw (K.S.L.I.).

Feathers.—AC. Pickersley beat Pte. Stone (K.S.L.I.).

Light-weights.—Pte. Norris (K.S.L.I.) beat AC. Stewart; AC. Begley beat Pte. Smith (K.S.L.I.); AC. McCormack beat Pte. Longbottom (K.S.L.I.).

Welters.—Pte. Exley (K.S.L.I.) beat AC. Stephens; Cpl. Crossman beat Pte. Travers (K.S.L.I.).

The finals of the Station Novices' Tournament and two special contests concluded a very successful evening's boxing.

At Manston on Oct. 29 Marine Davis knocked-out AC. Boetler in the 2nd round; AC. Page outpointed Cpl. Moyse (Royal Marines) in a 6 round contest—the I.S.B.A. champion looked to be giving away a good deal of weight.

AC. Howse (Manston) beat AC. Marshall (Felixstowe) on points; this was their third meeting—each had won once before. Howse seems to have improved since he ran up for the Middle-weight Championship last season.

AC. Preston (Netheravon) beat AC. Garratt (Manston) on points. The finals of the Station Novices' Competition provided some capital sport.

Fencing.

The Royal Naval College, Greenwich, defeated the Royal Air Force by the narrow margin of 14 victories to 13, in a three-weapon match at Bertrand's, on Oct. 30.

The foils finished with the College winning in this weapon by five victories to four. They had a similar lead at the finish of the épee fights, but the R.A.F. managed in the sabre bouts to win by five to four. The keenest fencing of the evening was between the sabre champion, Lieut.-Com. C. A. Kershaw, R.N., and the foils champion, Flt. Lt. F. G. Sherriff, R.A.F. The results were :—

FOIL.—Royal Naval College : Lt. Cdr. C. A. Kershaw, 2—1; Lt. W. G. Foster, 2—1; Maj. M. Everett, 1—2. Royal Air Force : Flt. Lt. F. G. Sheriff, 3—0; Col. R. C. Dodgson, 0—3; Cpl. W. R. Hancock, 1—2. Royal Naval College won with 5 victories against 4.

ÉPÉE.—Royal Naval College : Maj. M. Everett, 2—1; Lt. W. G. Foster, 2—1; Lt.-Cdr. C. A. Kershaw, 1—2. Royal Air Force : Flt. Lt. A. F. Ingram, 0—3; Flg. Off. F. C. Chalmes, 3—0; Sjt. E. J. Bradbury, 1—2. Royal Naval College won with 5 victories against 4.

SABRE.—Royal Naval College : Lt. W. G. Foster, 2—1; Sub-Lt. G. B. Roope, 0—3; Lt.-Cdr. C. A. Kershaw, 2—1. Royal Air Force : Flt. Lt. F. G. Sherriff, 2—1; Flt. Lt. A. F. Ingram, 1—2; Flg. Off. F. C. Chalmers, 2—1. Royal Air Force won with 5 victories against 4.

Hockey.

On Wednesday, Nov. 4, Kenley played Manston for the 2nd round of the R.A.F. Senior Cup at Kenley in perfect weather. From the bully-off Manston at once attacked and found the Kenley defence very rugged, the goalkeeper being especially good. After twenty minutes' play Wright, momentarily unmarked, scored for Manston with a splendid hook shot.

Kenley, thanks to the hard hitting of their backs, now moved the play to the other end when Jennings, the goalkeeper, brought off a great save, being injured in the effort. Manston returned and Sjt. Haskell scored Manston's second goal. At half-time the score was Manston 2, Kenley 0.

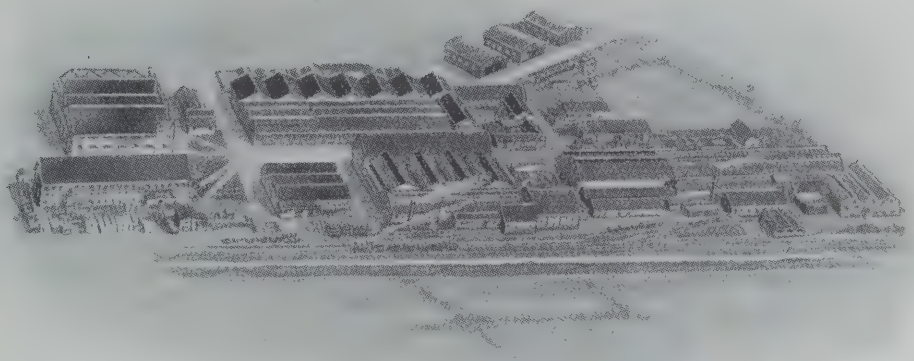
In the second half Manston pressed continuously and added four more goals through Wright 2, Morgan and Clark, thus making the final score : Manston 6, Kenley 0.

Manston showed very improved form as a team, being sound in attack and defence.

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A DISPATCH FROM WAZIRISTAN.

The following appeared as a Supplement to *The London Gazette* of Nov. 17 :—

India Office, Oct. 30, 1925.

From His Excellency General Sir Claud Jacob, K.C.B., K.C.S.I., K.C.M.G., Commander-in-Chief in India, dated Simla, June 29, 1925, to the Secretary to the Government of India, Army Department.

I have the honour to submit herewith for the information of the Government of India an account of the recent operations by the Royal Air Force against certain recalcitrant sections of the Mahsuds in March, April and May, 1925.

2. In submitting the report, I wish to bring to notice the excellent work performed by all ranks engaged in these operations. This is the first occasion on which the Royal Air Force in India has carried out an operation of this magnitude, and in view of the great difficulty of terrain and the unsuitability of the targets engaged, both of which are clearly set forth in Sir Edward Ellington's report, it is obvious that the results obtained were most satisfactory.

3. While, as the Air Officer Commanding points out, it is too early to judge what the permanent effect of the operations will be, we can say with confidence that threats of air action will be more effective in the future than they have been up to the present.

4. Satisfactory though the results of these operations have been, I am of opinion that combination of land and air action would have brought about the desired result in a shorter space of time, and next time action has to be taken, I trust that it will be possible to employ the two forces in combination. That they were not so employed this time was due to our desire to give the Royal Air Force the opportunity they have long wished for of testing the effectiveness of their unsupported action.

From Air Vice-Marshal Sir Edward Ellington, K.C.B., C.M.G., C.B.E., Commanding Royal Air Force in India, to His Excellency General Sir Claud William Jacob, K.C.B., K.C.S.I., K.C.M.G., Commander-in-Chief in India, dated June 23, 1925.

I have the honour to submit herewith a report on the Royal Air Force operations in Waziristan for the period Mar. 9, 1925, to May 1, 1925.

[Events prior to the Operations described in the dispatch may be summed up as follows :—

As the result of over 100 raids and offences being registered against the Mahsuds it was necessary to undertake military operations.—ED., THE AEROPLANE.]

3. On Dec. 16, 1924, the Resident, Waziristan, asked the Government of India to sanction the employment of air action against the recalcitrant sections. By the end of this month it appeared probable that operations would be necessary; a plan was therefore drawn up by No. 1 Wing, and the force to be employed was decided on. Jirgas from the friendly sections of the tribes concerned were seen, but despite demonstrations carried out by Royal Air Force units on Nov. 30, 1924, Feb. 7 and 24, 1925, outrages continued, and the hostile factions still tried to obtain impossible demands.

4. *Terms to Tribes.*—On Feb. 1 the Resident applied for permission to warn the Guri Khels that, unless terms to be stated were complied with, air action would be taken to enforce them. This request was granted, and following two further outrages, the Government sanctioned, on Feb. 25, the issue of a final warning to all the sections implicated. The terms were issued on Mar. 5: a warning was also issued that long delay action bombs would be used, and the tribes were advised to remove the women and children from the danger zone should operations be begun.

9. *Decision to begin operations.*—As no reply was received from the Abdur Rahman Khel, and the Faridai, Maresai and Guri Khel merely attempted to bargain, it was decided on Sunday, Mar. 8, to begin air action against all the sections concerned at dawn on Monday, Mar. 9.

10. *Preparations.*—On Feb. 12, judging that hostilities were now inevitable, Headquarters, Royal Air Force, approved a plan of operations, allotted the force to be employed, appointed Wing Cdr. R. C. M. Pink, C.B.E., to command, and authorised certain preparations to be made, such as the forwarding of supplies and bombs to the operating stations at Miramshah and Tank. These arrangements were made by Headquarters, Waziristan District, in consultation with the Royal Air Force, and a method of supply settled.

11. Explosives were forwarded from the Ordnance Depot, Rawalpindi; petrol, oil and other supplies came from the Depots at Peshawar, Kohat, Rawalpindi and Lahore. All supplies for both Miramshah and Tank were delivered at Mari Indus, transported across the river Indus to Kalabagh and forwarded by rail either to Tank direct or to Bannu for Miramshah. The average time taken for the delivery of supplies by this route was 14 days for Tank and 21 days for Miramshah. Most valuable assistance in loading and unloading supplies and other works of this nature was done by detachments from the 2/17th Dogra Regiment at Tank and the 2/19th Hyderabad Regiment at Miramshah.

12. *Selection of operating Stations.*—On Mar. 2 the advance parties went to Tank and Miramshah. Although the 60 miles which separated Miramshah from Tank caused certain administrative difficulties, it was necessary to use two stations as there was not room for three squadrons at either place. The squadrons concerned moved to their operating stations on Mar. 3, and on the 5th Operational Headquarters was established at Tank.

13. *Force employed.*—The force allotted for these operations consisted of a Headquarters and 3 squadrons—1 Bristol Fighter and 2 D.H.9as. This force was located as follows :—

Headquarters, Tank (5 officers and 20 airmen).

No. 5 (A.C.) Squadron—Bristol Fighter—Tank (10 aeroplanes—14 officers—69 airmen).

No. 27 (B) Squadron—D.H.9a—Miramshah (8 aeroplanes—15 officers—58 airmen).

No. 60 (B) Squadron—D.H.9a—Miramshah (8 aeroplanes—13 officers—67 airmen).

Total force—26 aeroplanes—47 officers—214 airmen.

14. *Area of the Operations.*—The operations took place in S. Waziristan. The area covered by them was some 50—60 square mile in extent, including about 40 targets, varying in height from 3,0 to 6,000 feet above sea level, the tops of the hills rising to 7,000 fe These targets varied from the good sized villages, vulnerable to bom attacks, of the Faridai and Maresai, to the purely cave dwellings the Abdur Rahman Khel, and the scattered huts and enclosures the Guri Khel. Practically all the villages, however, possessed a pr tective cave system. All the tribes possessed some cattle, these we mostly driven into the caves during the day and watered and fed night. Emergency landing grounds were available at Razma Sorarogha, Sarwekai and Khirgi.

15. *Meteorological conditions.*—Except in the early morning an evening, the air was very bumpy, making accurate bombing difficul Miramshah is 3,000 feet high and is surrounded by hills. It is liab to very sudden and severe storms, which, when accompanied by hai made flying both difficult and dangerous. These storms usually can up about 12 noon and lasted until 3 p.m. The aerodrome w rendered unserviceable for a long or short period after such storm according to their intensity and endurance. Tank was not affecte by these storms, but was very much hotter than Miramshah, r cording shade temperatures of over 100 degress during part of Mar and April. Operations were interfered with on 6 occasions by ra and hail storms. Atmospherics interfered considerably with th W/t communications between Miramshah and Tank.

16 *Tactics.*—The tactical unit employed was a flight of 3 machine bombing normally at a height of 3,000 feet over the target. Th tactics employed may be roughly divided as follows :—(*i*) Intensi Air Attack, (*ii*) Air Blockade, (*iii*) Night Bombing. Every effort w made to avoid routine in order to keep the tribes on the "qui vive and in a constant state of uncertainty as to when and how they we going to be attacked.

17. *Intensive Air Attack.*—Intensive air attack was carried out by series of flight raids, the hours of daylight being divided into period and the periods being allotted to squadrons in rotation. This form attack was varied by concentrating more than one squadron on selected target during a short period, and thus increasing the intensit of the attack. By varying the times and order of attack on target attempts were made to effect a surprise.

18. *Air Blockade.*—Air Blockade consisted in sending machines ov the area at irregular intervals during the day to attack certain definit targets, or to bomb any targets which might present themselves. Th object of this method was to harass the tribes continuously, to giv them a general feeling of insecurity, uncertainty and discomfort, an to prevent the pursuit of their normal activities. Continuous ai patrols were also employed with the same object.

19. *Night Bombing.*—Night bombing was carried out by individua machines by moonlight, either against definite targets which we seen, or on localities where it was desirable to maintain the block ade. Reconnaissance flares were used to assist the pilots in such wo No great material damage can be expected from this night bombing but it prolongs the blockade into the night, and thus further di organises the normal life of the tribesmen.

20. *Variation in tactics.*—Certain variations of these tactics were in troduced in order to keep the tribes in a state of uncertainty. Fo example :—(*a*) Desultory bombing was carried out for three days, fo lowed by intensive attack for two days, the series being repeated wit varying periods of attack. (*b*) Orders were given to stop all raids a 3 p.m., in order to give the impression that attacks for the day ha ceased. Heavy attacks were then launched just before dusk. (*c*) Th times of attack were continually varied, as were also the type bombs dropped, the time of delay action fuse used and the number machines employed.

(*d*) The night bombers were ordered to attain their maximum heigh over the aerodrome and then to throttle down their engines and appro over the target as silently as possible.

(*e*) A sufficient reserve was always kept in hand to enable a heav attack to be launched, should any suitable target, such as a con centration of tribesmen, be located.

21. *Forced Landings.*—It was of the utmost importance to avoid an pilot having to make a forced landing in hostile territory. Raid were therefore carried out at a sufficient height to give pilots reasonable chance of being able to reach one of the emergency land ing grounds in case of engine failure. These were the only place where a forced landing could be made without damage.

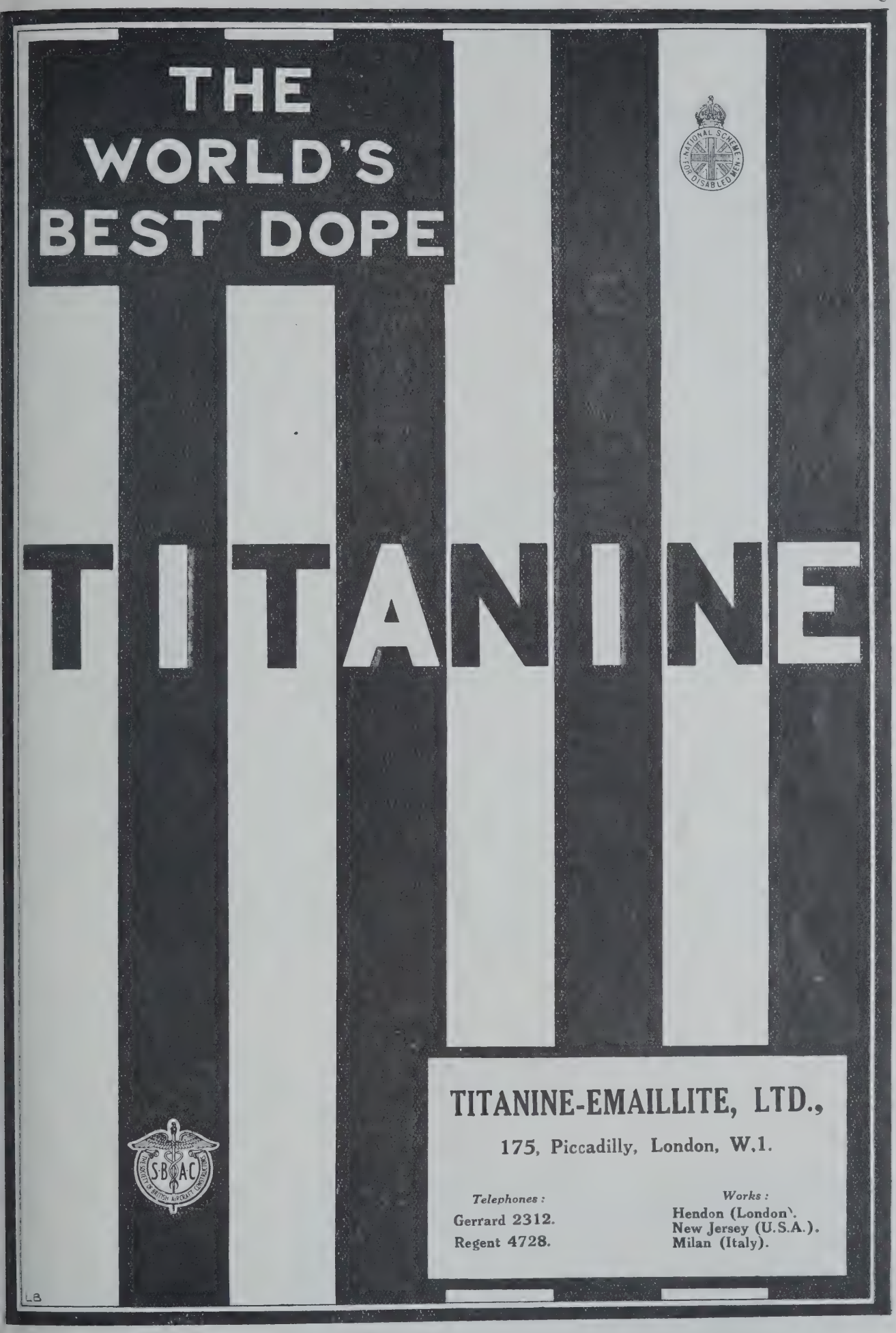
(To be continued.)

AN AIRSCREW ARGUMENT.

A paragraph in THE AEROPLANE recently mentioned th statement that the Curtiss machines which flew in the Schneider Trophy Contest were fitted with a type of Ree airscrew of more modern design than that which was fitte to the Supermarine and Glosters. A member of the Ameri can Aircraft Industry who has arrived in England since th competition tells one that the Curtiss machines had in fac the first three of the new type Reed airscrew. Therefor there was obviously no time in which to send to Mr. Reed' representatives in England (the Fairey Aviation Co.) th figures for and designs of the new type screw.

The difference in the new type is that the part of the air screw at the centre is forged out so thick that it can be mounted direct on the engine shaft, thus doing away with the need for a built-up steel hub with bolts and nuts, such as is needed in the older type, which is simply cut from sheet of duralumin and then machined and bent and twisted to get the right section and pitch.

Mr. Reed himself says that there is practically no differ ence betwen the two types of screws so far as air efficiency is concerned. This must be especially so when the boss of the twisted portion of the blade are enclosed in a "spinner" as it is on most high-speed machines. Therefore, one imagines that the chief advantage of the newer type is simplicity in fitting and actual lightness.


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THE LIGHT AEROPLANE CLUBS.

The London Aeroplane Club.

Flying during the week has been very restricted on account of fog and wind, and on only two days was it possible to give instruction.

Solo flying was carried out by Mrs. Eliott-Lynn, G. H. Craig, H. P. Lucas, G. N. Warwick, Sq. Ldr. M. Wright.

The following members had flying instruction:—H. F. Wight, Mrs. Atkey, W. E. P. Johnson, N. Jones, E. L. Brough, C. E. Murrell, G. W. Quirk, Major Beaumont, A. R. Ogston, L. J. C. Mitchell, R. P. Cooper, W. Hay, J. J. Tapper, F. Clarkson, J. H. H. Laxton, H. R. Thomas, D. Kittell.

The total flying for the week up to Sunday, Nov. 22, 1925, was 12 hours.

Mrs. Eliott-Lynn has been granted her Aviator's Certificate by the Royal Aero Club. This is the second Aviator's Certificate issued to Members who have received their flying instruction at the London Aeroplane Club.

The Lancashire Aero Club.

Bad fog has seriously interfered with flying throughout the week and only on Wednesday and Sunday was it possible to attempt instruction. Total flying time for week ending Nov. 23, 4 hours.

The following have had "dual" on "LR" with Mr. Scholes: S. Crabtree 30 minutes, H. Macnair 15 minutes, H. S. Stern 30 minutes. Mr. Cantrill give "dual" on "LR" to A. Goodyear 30 minutes. Solo flights on "LV" by Mr. Lacayo 1 hour 25 minutes, J. Leeming 20 minutes. Test flights by the instructors occupied 30 minutes.

On Wednesday, Nov. 18, Mr. Lacayo was busy making the required test flights for his certificate, and during his height test attained over 9,000 feet.

One member notorious for his invisible "Stalled Turns" is believed to have attempted a new form of "stunt." Upside down flying has often been heard of but up to now no one seems to have attempted landing in that position. Mr. Leeming was quite unhurt and the machine, only slightly damaged, will be flying again in a few days.

The Newcastle-upon-Tyne Aeroplane Club.

It seems that we have, at last, really aroused the interest of the "Older-Men" of the district in aviation. The proceedings at the opening of the Cramlington Aerodrome on Nov. 21, by the Lord Mayor of Newcastle, Councillor Anthony Oates, were a great success. The aerodrome is fully 9-10 miles from the town, the weather was very dull and bitterly cold. But not less than 160 guests and members attended, though many of the influential personages who had promised to attend were unable to do so on account of the death of the Queen-Mother, to which loyal and sympathetic reference was made in all speeches.

Sir Arthur M. Sutherland, Bart., K.B.E., J.P., presided in the place of the Duke of Northumberland, who could not attend for the above-mentioned reason. Sir Arthur is one of the greatest shipping magnates in the county and his support of aviation both as an important means of transport and as an industry is very gratifying.

The Sheriff is also well known in shipping circles.

With regard to Sir Sefton's "self help" advice, the motto of the Club is "By your own efforts shall ye rise," and that will always be followed, but we will always welcome outside help and after what was said on Saturday some will be forthcoming, though no definite promises were made on the spot.

Sir Sefton expressed surprise that the progress of the Club was so great and that the aerodrome and equipment was so complete, considering that machines had been so recently received. Preparations were begun long before machines arrived, of course, as the Club meant to go ahead whatever happened.

Sir Archibald Ross mentioned that he had recently been invited to become a Vice-President, but had not previously decided. After seeing all he had seen on that day he was anxious to accept if the offer was still open. The applause with which the remark was received would assure him that the Club was very glad that he was to associate himself with them.

Sir Arthur Sutherland has hitherto preferred not to associate himself with the Club, though his son was a member of the Committee from the beginning, but his interest in the future is now assured.

Councillor W. B. Ellis, Vice-President, one of the most active of those interested in the Club, who has flown for more than seven hours, provided 'buses to convey guests and members to and from the aerodrome.

Sir Sefton could not fly to Newcastle with Air Commodore J. Weir as arranged owing to fog.

The two D.H. Moths were christened *Bernicia* and *Novocastria* by the Lord Mayor's daughter, Mrs. McEwan. The Lord Mayor made his first flight in one, piloted by Mr. W. Baxter Ellis, while the Sheriff, Councillor R. J. Thompson, was taken up in the other by Major Packman. Lady Ross and Miss Ross, and Newcastle's blind Councillor, Mr. J. A. Clydesdale, also flew.

After the proceedings at the aerodrome the party were entertained to tea at the Club House by Sir Arthur Sutherland.

Flying Report for Week ending Nov. 22:—Times for the week, "LX" 16.09 hrs., "LY" 3.29 hrs.; Total time 19.38 hrs.

The following pupils flew under instruction with Major S. A. Packman:—Messrs. W. H. Leete (15 mins.), A. D. Bruce (30 mins.), J. D. Irving (3 hrs. 19 mins.), W. M. MacKay (68 mins.), C. Thompson (35 mins.), R. N. Thompson (1 hr. 33 mins.), W. Todd (30 mins R. M. Stobie (1 hr.), E. C. Kennedy (30 mins.), A. E. George (1 hr J. Wingate (30 mins.), J. H. Smith (1 hr. 15 mins.), F. H. Philli (32 mins.), J. C. Lawrence (45 mins.), G. H. Waugh (1 hr.), D. Sandilands (30 mins.), Miss F. J. Ellis (37 mins.).

The following flew solo during the week:—Mr. P. Forsyth (1 hr Mr. R. M. Stobie (30 mins.), Mr. N. S. Todd (30 mins.)

Major Packman carried the following as passengers: Mrs. Lawren Mrs. Kirkhouse, Miss Sutherland, Miss B. Elcoat, Miss Langdale, M Barton Wright, Mr. B. Nicholson, Mr. H. Ellis.

The weather has again been very dull and foggy throughout t week, but flying has taken place every day, though, owing to p parations for the Opening Ceremony reported hereinbefore, very lit flying was possible on Saturday.

The telephone is now installed in both the Club House a Instructor's office—Number, Cramlington 9.

The Second Annual Club Dance was held in the Grand Assemb Rooms, Barras Bridge, on Nov. 19, and was completely successf and thoroughly enjoyed by 220 dancers. The Committee responsib for the excellent arrangements was composed as follows:—Mrs. W Baxter Ellis, Mr. and Mrs. W. C. Waller, Mr. and Mrs. W. H. Lee and Major Brian M. Dodds.

Three pilots and pupils and another took part in a debate, ear in the morning of Friday, the 20th inst. The subject, it is state was "Navigation Lights and Signals," but the result is not ve clear.

Small but apparently heavy and valuable machine parts are bei secretly conveyed to the aerodrome, wrapped in brown paper, etc. small body of members and the Instructor and Engineer are, on eve possible occasion, and out of hearing, engaged in earnest conversatio in undertone of course. And the subject appears to be so serio and confidential that no other members dare to inquire the natu of the conspiracy.

The copy of Rules Relating to the 1926 Two-Seater Light Aeropla Competition was recently borrowed from the Secretary, and returned a rather worn condition without remark. Also inquiries have bee made for certain formulæ, one being that relating to calculations wi regard to stagger in monoplanes.

Developments are eagerly awaited, probably on the eve of the co petition. In the meantime, the approved "Hush" policy is bei followed.

The question of the day—"How many 'Answers' do you know Messrs. H. and T. What will it be, the tests at Cramlington or t "Questions" in London?

[One is concerned to see that the "Secret List" craze is spreadi from the Air Ministry and the Royal Aero Club to the Light Aeropla Clubs.—C. G. G.]

The Midland Aero Club.

Still no report of activities has been received from Birmingha but a member of the Club has sent a letter which reads as follows:

"Having been a regular reader of The Aeroplane for the last months I am much surprised to see your account of The Midland Ae Club in your issue of Nov. 18.

"It would appear from this that flying at the Birmingham Clu is moribund. Being a flying member of the Club I wish to co tradict this statement. From what I can see of the way the Clu is training new pilots, the high state of efficiency the Cirrus engine are kept in, and the amount of time put in, I think that the Clu is being run in an entirely satisfactory manner. We have had als the good fortune to secure the services of an excellent pilot instructo Capt. McDonough.

"I may say I speak with a little authority on the satisfactory manne the Club is being run as I was in the R.F.C. and R.A.F. during part of the War, and have naturally had some experience of flying training.

(Signed) R. E. Summerfield."

[One is glad to hear that the Club is fulfilling its function. Bu if the Committee chooses to put the Club's doings on the Secre List one cannot be blamed for assuming that aviation in Birmingha is moribund.—C. G. G.]

The Yorkshire Aeroplane Club.

So far no information has been obtainable about this Club. Pre sumably it also has placed itself on the Secret List.—C. G. G.

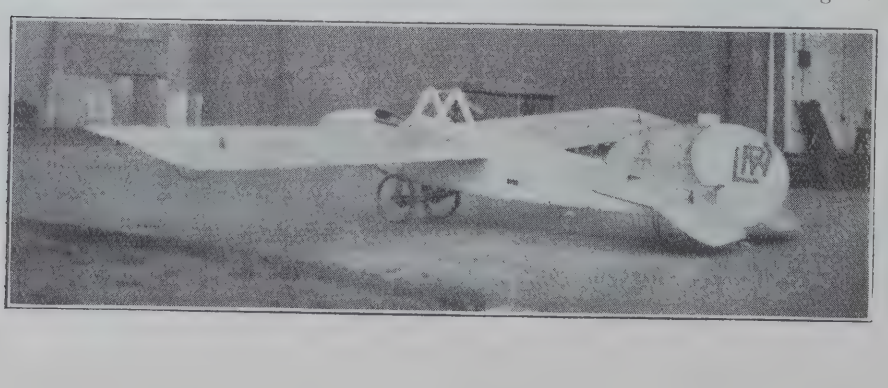
NEW WORLD'S RECORDS.

On Nov. 12, at Le Bourgêt, M. Bossoutrot, flying a Farman Super-Goliath fitted with four 500 h.p. Farman engines, succeeded in beating seven World's Records carrying various useful loads.

With 1,000 kgs. (2,204 lbs.) he remained in the air for 2 hrs. 13 mins. 49.6-10 secs., and with 2,000, 3,000 and 4,000 kgs. (4,408, 6,612 and 8,816 lbs.) he remained in the air for 1 hr. 47 mins. 10½ secs.

Carrying 2,000 kgs. (4,408 lbs.) he reached a height of 4,475 m. (14,678 feet), with 3,000 kgs. (6,612 lbs.) a height of 1,942 m. (6,369 feet), and with 4,000 kgs. (8,816 lbs.) he reached a height of 1,363 m. (4,860 feet.).

It seems unnecessary to add that the machine was fitted with Lamblin radiators, which appear to be standard equipment for all Record-breaking aircraft.



THE FIRST-BORN.—The L.P.W. monoplane built by the Lancashire Aero Club. This machine was first used as a glider, and later was fitted with an engine presented by Mr. George Parnall, and used for training before the advent of the Moths. It is now used as a "Penguin" for taxying practice.

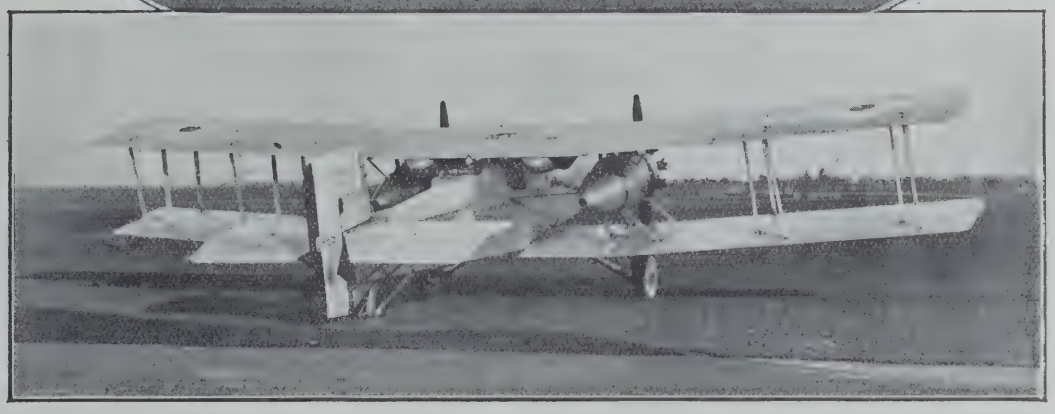


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THE REVIVAL OF THE RACING MONOPLANE.

When in 1914 Mr. Sopwith built as a challenger for the Schneider Trophy a tractor biplane, quite a number of the aeronautical experts of those days smiled. All successful racing machines were monoplanes and it looked obvious that the biplane must of necessity present a higher resistance than the monoplane.

But when the Sopwith machine started to fly round the course at Monaco the pilot of the French first string—a racing Deperdussin monoplane—admitted that unless the Sopwith engine gave out it was useless for him to start—so obvious was it that the Sopwith biplane was the fastest machine present.

The 1914 Schneider Trophy race was the last speed event to take place before the outbreak of war. At that time all international speed records were held by monoplanes. From 1914 until the end of 1924—a little over ten years—no speed record was made and no great race was won by a monoplane, and for racing purposes and for all high speed aeroplanes the biplane type held the field practically undisputed. In December, 1924, the Bernard racing monoplane recaptured for France the International speed record, beating the American biplane record by some 12 m.p.h.

Biplanes versus Monoplanes.

And to-day the entries for the race for the Schneider Cup included three monoplanes—one British and two Italian—to four biplanes—three American and one British. Thus monoplanes formed a majority of the challenging machines, and as the three defending machines were all the products of the American firm, the entries showed an equal division of opinion between designers as regards these two types.

It is by no means uninteresting to consider why opinion on this subject of biplane and monoplane should have wavered in this intermittent way. In the first place it is obvious that the monoplane can be built to a cleaner design than the biplane. Even in the early types of braced monoplane this was the case to some appreciable extent. The biplane, on the other hand, for an equal wing area permitted a considerable reduction in the weight of the wing structure.

In the earliest days of flying when the only engines available were of low output and of great weight per h.p., flying was possible only at low speeds—consequently with low wing loadings and large supporting surfaces.

Success in getting off the ground was very largely determined by the designer's success in producing light wings of large area. The earliest successful aeroplanes were biplanes because they possessed adequate wing surface without prohibitive weight, and hence could fly at very low speeds.

As engines of better weight per h.p. and of higher power became available the speed at which flight was possible increased—in other words, it became possible to get off the ground with heavier wing loadings or with wings of reduced area. As the required wing area came down so did the weight advantage of the biplane diminish because the wings formed a smaller proportion of the total loaded weight of the machine.

The growing skill of pilots allowed designers who were ready to take risks to put up the loadings on racing machines to very high values. The 160 h.p. racing Deperdussin of 1913, which raised the world's record to 125 m.p.h., carried a wing loading considerably greater than is to be found in high speed single-seat fighters of to-day, and could certainly not have been landed at any speed less than 80 m.p.h. In practice the landing speed was nearer 100 m.p.h. The total weight was about 1,400 lbs., the span just under 22 ft., and the wing area 97 sq. ft., giving a loading of 14.5 lbs./sq. ft. A biplane of the same area would not have been noticeably lighter than the monoplane unless the span were appreciably reduced, which was scarcely practicable, and the resistance of the bracing would certainly have increased.

Wing Loading.

Although the amount of aerodynamical data available at that time was very limited, it was obvious that by putting up the loading and the landing speed to an extent that obviously was excessive for any but racing purposes, the maximum speed could be notably increased. But the process of design then was purely empirical, and there was no firm foundation which would guide the designer as to how far he could safely go in this respect except that of trial and error. It is now perfectly obvious that a biplane with the same engine and with a lower wing loading could have been built which would have been faster than the racing Deperdussin, but nobody built it, or even tried to.

That the Sopwith Schneider Trophy machine beat all its monoplane competitors may be traced in the first place to the fact that seaplanes are necessarily heavier than land machines of corresponding types. The racing Dep, loaded as she would have been to 16/17 lbs./sq. ft., and nearly 14 lbs. per b.h.p., had floats been fitted would never have got off the water, and pretty certainly would never have got back safely. The necessity for getting off and getting back to the water, together with the added weight of floats entailed lower landing speed, lighter wing loading, and therefore much larger wing areas. The Deperdussin seaplane at that race was of twice the span, and three times the area of the racing land machine, yet only weighed some 50 per cent more than the land machine—the wing loading therefore being one half of that of land machines.

The Sopwith had a span of some 27 ft.—about 60 per cent of that of the Dep. sea monoplane. The reduction in span would account for an appreciable saving in weight, and permit the use of single-bay bracing—which would compare favourably in resistance with that of the much larger span monoplane. In other words it was practicable to make the biplane in this case a lighter and smaller machine than the monoplane, and this reduction in dimensions brought the total resistance of the biplane down to less than that of the larger—but intrinsically cleaner—monoplane type.

The Effect of the War.

Had war not intervened to put an end to racing in Europe it is quite probable that the monoplane would for some time have retained its lead in speed, at any rate for as long as the limit to landing speed was only set by the courage of the designer and the willingness of the pilot to take risks. War stopped racing, but it gave a greater incentive to increase in the speed of flight than racing had done previously. Speed by itself, however, was no longer the sole consideration. Some useful load over and above pilot and fuel was necessary, a landing speed which would give a normal pilot a reasonable chance of getting safely into a rough and restricted aerodrome and finally a high rate of climb and ceiling, were all necessary in a greater or less degree.

That is military machines had to be of relatively light loading, of large wing area—when compared to racing machines—and under these conditions the structural advantages of the biplane practically outweighed the superior cleanness of the monoplane. With growing experience in design and with more powerful and lighter engines, the speed of the military biplane soon equalled and eventually far surpassed the speed of pre-war racing monoplanes.

At the end of the war it was inevitable that the first attempt to produce racing aircraft should have taken the form of the further development of the high-speed military types—which were mainly biplanes. There could be no question of returning to 97 sq. ft. monoplanes for record-breaking purposes—the increase in the power of available engines dictated the use of considerably larger surfaces, and the weight advantage of the biplane was still marked even when considerations of climb were neglected. Moreover, the streamlining of bracing wires and struts had developed to such an extent that the importance of bracing resistance had become relatively small, and on this point the braced monoplane had little or no advantage over the biplane of the same total area.

The development of the thick wing and the practical possibility of building a monoplane without exposed bracing, however, altered the state of affairs in the matter of clean lines. On the other hand the cantilever monoplane was even heavier structurally for the same span, than the braced monoplane; and thick wings, suitable for cantilever construction, although usually giving a higher lift, and therefore permitting of a smaller surface for a given weight and landing speed, did not show such a low resistance, or so good an L/D ratio as the thin types which had been developed for biplanes, and for a time it appeared as though the biplane supremacy in respect of speed was likely to remain unquestioned.

But so far design of aircraft on the aerodynamic side was on a purely empirical basis. The lift and resistance figures for wings had to be taken from experimental results either in the wind channels or in free flight, and the effect of changes from the test conditions could not be predicted—they had to be determined by trial and error.

Drag.

The advance made during the past few years has largely altered this state of affairs. It is now known that part of the drag of an aeroplane wing is independent of the wing section used, and—subject to minor corrections for the exact arrangement of wings—depends only on the span, the total lift, and the air speed. Another part of the drag is dependant on the section, the area of the wing, the speed and the total weight lifted.

The first component of drag, known as induced drag, is directly calculable for any given condition. The second, known as the profile drag, can be determined for any wing section from a single test on a model of that section.

The designer can thus calculate accurately the total resistance of wings of known sections of any span for any load or speed. He can also calculate or estimate fairly closely the changes in weight caused by alterations in span, by the change from monoplane to biplane, etc. And therefore, without reliance on trial and error he can foretell to what extent the extra weight of a large span monoplane will compensate for its improved aerodynamic qualities.

This may be illustrated by the case of the Gloster and the

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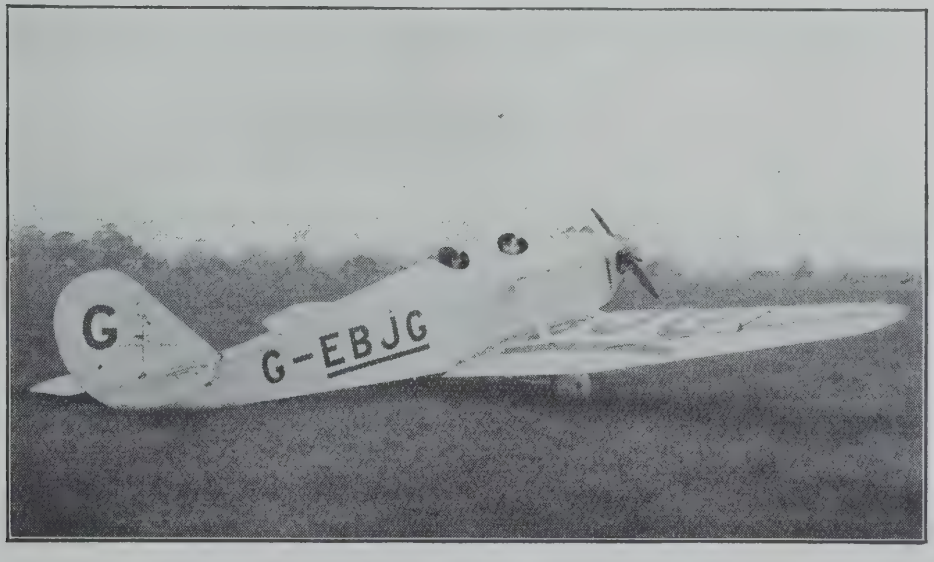
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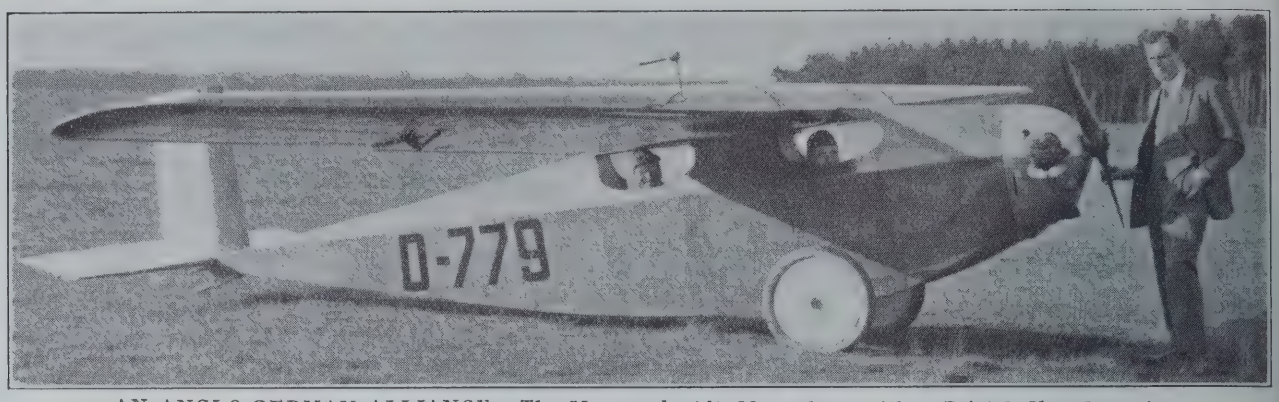
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AN ANGLO-GERMAN ALLIANCE.—The Messerschmidt Monoplane with a Bristol Cherub engine.

Supermarine Schneider Trophy racers. Accurate data concerning these are not available, but from the photographs the span of the Gloster is about 20 ft., that of the Supermarine 30 ft. The induced drag of the Gloster is equal to that of a monoplane of approximately 22 ft. span. For the same total weight at the same speed, the induced drag of the Supermarine is $\left(\frac{22}{30}\right)^2$ or 49 per cent. of that of the Gloster only.

The Supermarine is pretty certainly heavier than the Gloster. Here again data are not available, but the Gloster does not weigh less than 2,500 lbs., and the Supermarine may be 500 lbs. heavier. Assuming these figures, the induced drags at the same speeds are as 1 to 1.29 in favour of the Supermarine. At 200 m.p.h. this means that the Supermarine has about 20 lbs. less induced drag than the Gloster—equivalent to nearly 11 thrust h.p. The Supermarine has no drag due to bracing, but has possibly a somewhat higher profile drag than the Gloster—having no data of either section it is impossible to make any estimate thereof. Wings sufficiently thick for use as cantilevers have recently been developed with profile drags very little if at all higher than those of the best thin wings. Assuming that such a section has been used the Supermarine's profile drag will not exceed that of the Gloster by an amount greater than the drag of the latter machine's bracing. In other words the wing drag of the Supermarine may be expected to be less than that of the Gloster, despite 20 per cent. extra weight carried. But the example indicates that the advantage of the monoplane in this case can be calculated definitely.

The figures given above show that the extra weight of a monoplane may be justified by reduced drag, and they also indicate how small a proportion of the total distance at high speeds is due to this factor—which in this case accounts for 11 h.p. in four or five hundred delivered as thrust.

It cannot be said that this is sufficient by itself to settle the question of biplane v. monoplane, even under the assumed conditions—considerations of manœuvrability, may be of greater importance in an actual race than the small decrease in drag which can be attained by the use of a large span. But it can be said that under present conditions there is little between the two types so far as speed capabilities are concerned, but the designer can now estimate the relative advantages of the two types with accuracy, and that being the case it is fairly certain that the biplane will no longer hold the field for racing purposes merely because its performances could be estimated with greater certainty as the result of extended experience with the type.

THE BOOK OF THE BRISTOL LUCIFER.

The Bristol Aeroplane Co. Ltd. have just issued a very interesting booklet dealing with the Bristol Lucifer engine, the three-cylinder 120 h.p. radial which has distinguished itself so highly during the past couple of years. The Lucifer is in fact the little brother of the 450 h.p. nine-cylinder Jupiter which is rapidly obtaining World-wide recognition as the leading engine in the air-cooled radial class.

The Jupiter is being manufactured under licence in various foreign countries, a distinction which one believes has not been attained by any other radial engine. The Lucifer is made with all the same care for material and workmanship as is the Jupiter and is making an equally high reputation. The Lucifer's reliability is proved by the fact that six instructional aeroplanes have been in constant service at the Bristol Flying School for R.A.F. Reserve officers for more than two years and there has never been a single forced landing attributable to engine trouble. It would be difficult to find any engine which can show such a record.

The success of the Lucifer has not been by any means confined to its own country. Two of them, one in a Heinkel and the other in a Caspar, distinguished themselves in the German Rundflug in June. Since then an Albatros with a Lucifer won the Sachsen Rundflug. In Holland Mr. Koolhoven has used one satisfactorily in a N.V.1 machine, the Phœnix people in Sweden and the Army Aircraft Factory in Norway and the Spanish Royal Air Force have also used them with complete satisfaction in training machines. In Germany the Junkers and L.F.G. firms have also used Lucifers and produced excellent results. And Lucifers used in Japan have given complete satisfaction.

The latest Lucifers, the Series IV, while retaining the tried and proved features of the earlier series, have certain modifications in cylinders, valve-gear, big-end construction, and induction system which give higher power and greater fuel economy. And, in spite of this, 250 hours' service in the air can be assured before a complete overhaul is necessary.

In June of this year a standard Series IV engine was put through the Air Ministry Official Type Test of 100 hours with additional tests at excess power. It went through this gruelling performance without trouble, and after being stripped for examination was merely re-assembled and put into an aeroplane for flying tests. It is interesting to note that after running nine periods of ten hours at 123.9 h.p. the engine did its tenth ten-hour run on full throttle giving 131.9 h.p.

The booklet describes and illustrates the engine very fully, and the Bristol Company will be pleased to send a copy of it to any responsible reader.

THE CURTISS V.1400 ENGINE.

The first of the Curtiss V.1400 engines—which were used in the Curtiss Schneider Trophy Racers—passed the American Army Standard 50-hour test in the early part of 1925. It is recorded that throughout this test the engine ran even more smoothly than the earlier D.12. A few minor failures occurred—the most important being malfunctioning of the ignition system, and breakage of the stainless steel water-pump shaft.

The average consumption of fuel and oil were well below specified limits, being 0.49 lbs. per b.h.p. hour of petrol, and 0.018 lbs. per b.h.p. hour of oil.

In general the new engine differs from the D.12 in the following respects :—The cylinder sleeves have open ends in place of closed ones, and are screwed into an aluminium block head carrying the bronze valve seats. The camshaft drive has been modified, and the airscrew hub is now solid with the crankshaft, except for the front flange.

The V.1400 is arranged to use either a battery-coil ignition system or a double-circuit magneto in place of the earlier two magnetos.

The bore and stroke are $4\frac{7}{8}$ ins. by $6\frac{1}{4}$ ins., the rated output of the standard engine is 500 h.p. at 2,100 r.p.m., and the weight is below 700 lbs.

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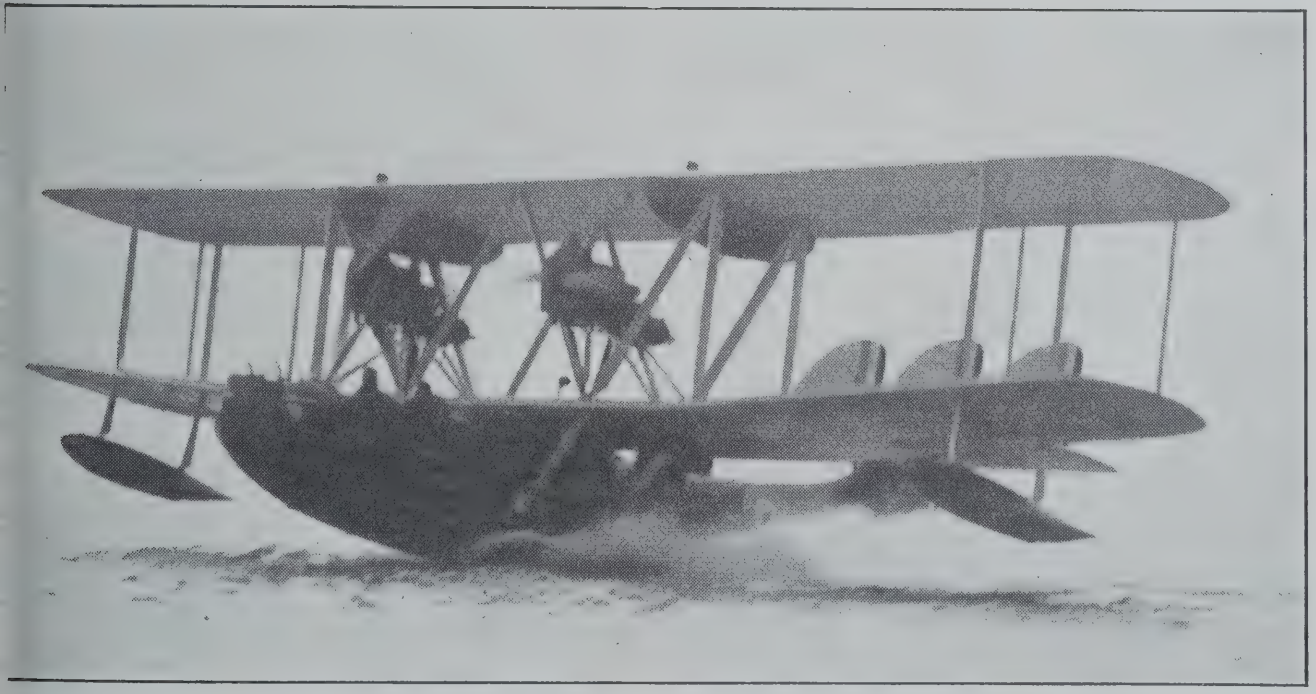
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ENGLAND.

COMMERCIAL AERONAUTICS.

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 10 Tuesday, 10; Wednesday, 11; Thursday, 10; Friday, 6; Saturday, 2; Sunday, 0.

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London—Paris—Zurich—; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 27, passengers 65, freight 12 tons.

AIR UNION:
Paris—London: Machines 9, passengers 34, freight 8 tons.

K.L.M.:
Amsterdam—Rotterdam—London: Machines 7, passengers 12, freight 1 ton.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES: Nil.

Total number of trips by British Machines: 27, carrying 65 passengers. Foreign machines: 16 carrying 46 passengers.

Comparative Figures:

For week ending Nov. 22:
Machines, 43; Passengers, 111; Crews, 52; Total personnel, 163.

Corresponding week, 1924:
Machines, 61; Passengers, 134; Crews, 76; Total personnel, 210.

Corresponding week, 1923:
Machines, 31; Passengers, 57; Crews, 49; Total personnel, 106.

Corresponding week, 1922:
Machines, 65; Passengers, 151; Crews, 121; Total personnel, 272.

Corresponding week, 1921:
Machines, 44; Passengers, 87; Crews, 71; Total personnel, 158.

Corresponding week, 1920:
Machines, 47; Passengers, 85; Crews, 57; Total personnel, 142.

Croydon Notes.

The weather during the past week has been bad again, and there was much fog on all routes. On Friday no machines came into or out of Croydon at all. On Saturday Mr. McIntosh and Mr. Rogers were the only pilots to leave, but both were forced down at Ostend. Even if there had been any services scheduled for Sunday they would not have been able to operate owing to fog.

Imperial Airways Ltd. are shortly opening new offices in the Haymarket. This will be the car terminus in London. Here passengers and their luggage will be weighed instead of at Croydon, and the weights will be telephoned while the passengers are on their car journeys. Everything will then be in readiness for the passengers to get straight into their allotted machine on arrival at Croydon.

The only delay here will be the passport and customs examination and this is likely to be very short for the passport and customs people at Croydon must be about the quickest in the World. They get right down to the job in hand, and one has never heard of any of that unnecessary fuss and delay which is prevalent in other places.

Mr. Silverwood Cope, who was for some time on the staff of Imperial Airways, having been received on loan from Dunlops, has now returned to Dunlops, his tour of duty being at an end.

One understands that the Kantara-Karachi service will come into operation in the spring of 1927. Imperial Airways have decided definitely not to operate it with old types of machines but to wait until the new three-engined machines are a practical proposition. Meanwhile preparations are proceeding with the ground organisation.

Mr. Biddlecombe and a kite-balloon have been much in evidence lately. They ascend together at night and in fogs to look at the Neon lights. On one occasion they ran into four entirely different sorts of weather in the course of an ascent to 3,000 ft. They began in fog. Then at 1,000 ft they came out of the fog into a wind of 40 m.p.h. Above that was a layer of thick cloud. And at 3,000 ft. they came out into dead calm and clear weather.

Rumour states that there are to be further experiments in night flying on the various air routes, and one awaits with interest the German and Dutch versions of Le Bourgêt's famous "Allo Beedelkom" which pervaded the midnight ether for several nights some years ago, when Mr. Biddlecombe carried out the first London-Paris night tests.—G. D.

Stag Lane.

On Saturday morning, as a variant from the customary pilgrimage to Croydon, one decided to pay a visit to Stag Lane instead.

In spite of a fog, which made visibility invisibility, a Moth was pirouetting in the gloom and fog.

Mr. Hubert Broad, on returning from America, has resumed his duties at Stag Lane. By way of a change from the 700 h.p. (Hush!) Gloster-Napier III, Mr. Broad had been testing a 6 h.p. D.H.53 the previous day. This machine has been bought by the Berkshire Aviation tours, for demonstration flights, and good propaganda is likely to be done by flying the "machine with the motor-cycle engine."

By way of showing that he has not lost his touch for the smaller types of machine, Mr. Broad was kind enough to take up in a Moth one's better half and a friend and oneself severally and separately.

With all of one's fourteen stone, and down a wind blowing at about 5 m.p.h., the Moth took off in roughly five seconds and climbed like a scout; visibility was very bad, but passing low over Hendon Aerodrome, the portly figure of the Savage Mr. Bramson could be seen filling the door of the skywriting shed, and wondering whether the machine was fitted with an anti-stall gear.

One was immensely impressed with the flying quality of the Moth and the smooth and quiet running of the Cirrus engine. The Moth appeared to be very pleased that its price had not been increased, in spite of the bad example set by the Cirrus in that respect.

Mr. Broad's handling of any aeroplane is a joy, and his well judged spiral glide and landing, with which we terminated our flight, is one of the things which have to be seen or experienced to be appreciated.

Owing to the thick weather the London Club was not at work. One learns that Mrs. Elliott Lynn, who has qualified as a pilot, is to go through a course of ground work at the De Havilland Works, after which she will try and qualify for her B licence. They say at Stag Lane that she is a remarkably fine pilot, and her recent performances seem to confirm this statement.—G. D.

A Northern Airway.

A correspondent, writing in *The Manchester Guardian* on Nov. 19, states:—

Plans are under consideration for the establishment next spring of a regular airway across the North Sea, starting from some suitable place on the east or north-east coast, and serving the Northern capitals.

It is intended to use on this new air line the twin-engined 1,000 h.p. all-metal Rohrbach-Napier flying-boats, the construction rights of which have recently been acquired by a British firm. These machines are equipped with telescopic masts and sails, and, in the event of forced descent at sea can be navigated as easily as an ordinary ship.

[If this rumour be true the line would probably be run by the Beardmore firm or one of its subsidiaries, as the Rohrbach designs have been taken over by Beardmore's.—ED.]

The Installation of Air-Cooled Engines.

On Thursday, Nov. 26, Mr. A. H. R. Fedden will read a paper on "Installation Problems in Air-Cooled Engines" before the Royal Aeronautical Society, in the Society's Library, 7, Albemarle Street, at 5.30 p.m.

Mr. Fedden, as the designer of the Bristol air-cooled engines, has inevitably a very large experience of the various problems which are encountered in the installation of engines of this type, and the paper can confidently be expected to be of very great interest in itself, and should provoke a lively and interesting discussion.

The Fairey Seaplane in British Guiana.

According to *The Times*, the Fairey ambulance seaplane which was described in THE AEROPLANE last October, is in British Guiana, and a report received from Mr. Hodgkins the owner of the Real Daylight Balata Company, states that the first flights have been extremely successful.

At present it takes from 17 to 21 days to bring a patient down from the up-country estates of the company by river to George Town, and the use of a seaplane reduces the journey to a few hours. The company have erected hangars and made slipways at the terminal points and on the route and the first flight was made by Captain G. N. Trace with Mr. Hodgkins as passenger. Subsequently, at an official opening of the slipways and service, the Governor of the Colony, Sir Graeme Thompson, K.C.B., and Lady Thompson, were taken for a flight over George Town and the surrounding district.

For several years British Guiana has been strongly interested in the possibilities of air transport into the interior and Mr. Hodgkins' enterprise is likely to have a very beneficial effect on the prospects of British commercial air transport in this part of the World, and strengthen the work already done by Major Hemming, of the Aircraft Operating Company.

AIR AFFAIRS IN PARLIAMENT.

AMERICAN ENGINES.

In the House of Commons on Nov. 18, REAR-ADMIRAL SUETER asked the Secretary of State for Air to explain why American engines were fitted to the R.A.F. machines used on the flight from Cairo to Kano to show the British flag. SIR SAMUEL HOARE said that the flight was intended as a training exercise on an extended scale for a detachment of a squadron normally stationed at Cairo using the ordinary service equipment of the squadron. The object would not have been met if a specially equipped squadron had been sent out for the flight and greater expense would have been involved. Sir Samuel Hoare added that the present use of Liberty engines in Service squadrons was due to the existence of large War stocks of such engines which were still being utilised in the interests of economy.

In reply to a supplementary question by ADMIRAL SUETER, SIR SAMUEL HOARE assured the House that British engines and machines would be used in the forthcoming flight from Cairo to the Cape by

the R.A.F. It was the general policy of the Air Ministry to obtain their requirements from British sources wherever possible and this policy was only departed from for experimental purposes. The Air Ministry must reserve to themselves the power to profit by any aeronautical advance even if a purchase from a foreign country was thereby rendered necessary.

In the House of Commons on Nov. 18, in reply to a question by MR. MACLEAN, the SECRETARY OF STATE FOR AIR made the following statement:—

"An experimental order has been placed for certain aircraft complete with engines with a British firm who elaborated the design of the machines on the basis of incorporating certain features dependent on the use of an American engine, differing in certain respects from the standards laid down for British engines. The order necessitated the purchase from this British firm of a certain number of American engines. No direct order was placed by the Air Ministry with an American firm, and as no other type of engine was suitable for the aircraft, the question of comparative prices does not arise."

ABOLISHING THE R.A.F.

In the House of Commons on Nov. 19, SIR F. HALL asked the PRIME MINISTER whether the Government would consider abolishing the R.A.F. in the interests of efficiency and economy and if he would appoint a special committee which should include a proportion of members unbiassed by official interests to report upon the question of economies of administration in this direction.

THE PRIME MINISTER said that this question, together with all questions affecting possible economies in the Fighting Services, fell within the scope of the Colwyn Committee.

PERSONAL NOTICES.

DEATH.

SMITH.—On Nov. 20, at Leysdown, near Eastchurch, as the result of a flying accident, Cecil William Montague Smith, Plt. Off., R.A.F. Mr. Smith entered the R.A.F. with a short service commission on June 30, 1924. He was posted to No. 29 (Fighter) Sqdn., Duxford.

FORTHCOMING MARRIAGE.

BETT—TOWGOOD.—The marriage arranged between Flg. Off. Patrick John Bett, R.A.F., late the Gordon Highlanders, eldest son of Mr. and Mrs. David Gordon Bett, of Hasketon, Woodbridge, Suffolk, and Ellen Geraldine, only daughter of Mr. and Mrs. Robert L. Towgood, of Farm Hall, Godmanchester, Huntingdon, will take place on Dec. 17 at St. Mary's, Godmanchester.

MARRIAGES.

TAYLOR—WEALE.—On Nov. 16, at St. Brelade's Bay, Jersey, the wedding took place between J. C. Crabtree Taylor (late R.A.F.) and Grace Weale.

PARK—CHAPMAN.—On Oct. 30, Flt. Lt. Stanley Miles Park, R.A.F., second son of Charles R. Park, of 44, Woodstock Avenue, N.W.11, formerly of Minster, Isle of Thanet, to Florence Furnival, younger daughter of H. Surtees Chapman and Mrs. Chapman, of Standon, Hertfordshire.

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THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

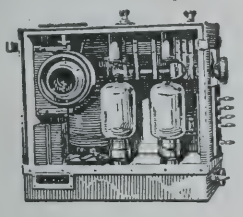
Vol. XXIX. No. 23. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"NOW WE COUNT NEW KEELS AFLOAT."—*(Kipling.)*.



(Photograph by the Lancashire Daily Post.)

A NEW METAL HULL.—The machine shown is the English Electric Co.'s new Kingston flying boat (two Napier Lion engines) fitted with an all-metal hull which has been designed by Mr. W. O. Manning, the firm's aircraft designer, one of the pioneers of aircraft construction in this country, and produced under his supervision. This hull is mainly of duralumin, but incorporates a certain number of stainless steel parts. Although generally of the usual form, the hull has a number of novel points in its design, and represents a distinct step forward in the production of a really seaworthy flying boat of large size.



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ON FACING FACTS.

One of the most difficult tasks in the World is to make the average Englishman, or woman, face facts. In his preface to "Cæsar and Cleopatra," Mr. Bernard Shaw, in explaining the character of Britannus, Cæsar's British private secretary, has gone to some trouble to explain why and how our climate is responsibe for that particular form of hypocrisy or self-deception which is more generally known as the Non-Conformist Conscience. And, boiled down, that particular spiritual vice amounts to nothing more than a refusal to face facts.

Religious cant about our moral rectitude, artistic cant about the purity of the nude in Art (always with a capital A), commercial cant about our national honesty, even cant about our sportsmanship are all based, fundamentally, on that same hatred of facing facts. And anyone who forces us, either as individuals or as a social class, or as an industry, or as a nation, to face facts, is naturally unpopular. Either he is put down as a cynic, when in fact he is probably a sentimental idealist, or he is dismissed as an unpractical fool, or he is regarded as a self-advertising humbug.

But once in a while someone of real weight in the community, a man of proved ability, finds himself so happily placed that he can afford to ignore the opinions of others and can afford to tell the truth, the whole truth and nothing but the truth. And then others profit by his boldness.

Such an occasion occurred on Thursday last, Nov. 26, when the Royal Aero Club held its first monthly house-dinner, and induced Mr. C. R. Fairey to speak his mind.

More or Less.

Of course if the Royal Aero Club were an ordinary club and the members sat round a table and indulged in back-chat after dinner one would have absolutely no right to record in print anything which was said there, although as a matter of fact most State Secrets, whether in war or peace, do leak out through after-dinner conversation and get into the papers thanks to the fact that there is generally "a chiel amang 'em takin' notes," as Robert Burns remarked, more or less. But the Royal Aero Club exists primarily to govern the Sport of Flying,—which it does more or less, even though it be a moderate government rather than a progressive. Also the Royal Aero Club is a body which combines with the representative Aero Clubs of other nations to form the Fédération Aéronautique Internationale, which organises the great international air races. Therefore its doings and sayings ought to be more or less public property.

Furthermore, this first monthly house dinner partook much more of the nature of a full dress debate (although the members were in clothes of the variety generally known as dog-robber or rat-catcher) than of a talk across a table. His Grace the Duke of Sutherland, Chairman of the Royal Aero Club, was in the Chair, with Sir Philip Sassoon, Under-Secretary of State for Air, on his right hand, so that the dinner was distinctly a function. And as the subject discussed was one of the greatest international importance one feels justified in giving the gist of what was said after dinner.

The subject of the debate was set down as "American Aviation," though in fact it became somewhat particularised in that most of it had reference to the Schneider Trophy Contest. Naturally the pleasing prospect of an acrimonious argument attracted many members who seldom visit the Club, and when one arrived the number of luxurious automobiles parked outside the club-house suggested that a motor-show was in progress somewhere in London rather than a mere aeronautical discussion.

Mr. Fairey on America.

Mr. C. R. Fairey, who was announced to open the discussion, congratulated the Committee of the Club in initiating these house dinners and hoped that they would be a financial success,—a sentiment which one heartily endorses. He said that he was not an authority on American aviation but that he admitted the pre-eminence of the Americans in the matter of speed. He felt that he was in some danger in opening this debate for he might be charged with displaying pro-Americanism because of excessive American hospitality. Here one sympathises with Mr. Fairey because one has frequently suffered from the same charge oneself, merely because one has written and spoken truthfully of the wonderful progress which America has made in aviation, and of what one has seen oneself in the States.

Continuing Mr. Fairey said that America was the place where you could get any impression which you sought. The prohibitionist could find conclusive proof of the benefits of prohibition and the anti-prohibitionist could find plenty to drink. The student of sociology could find evidence of the high moral tone of the people or their vices. Here again one agrees with Mr. Fairey,—the reason is simply that there are so many people in America that there are enough to go round for all seekers. Mr. Fairey said that one could go to America with blinkers on and retain one's own theories or one could go there and get new ideas with which to beat the Americans at their own games.

This, one agrees, is the whole point of the argument. For example, look at the superiority of our tube railways, our hotels, our Pullman cars, and our best and our cheapest motor-cars, as the result of improving on American ideas.

Facts to Be Faced.

As for American aviation, he said that we had got to face facts. In the last few years American Aviation had emerged from obscurity, and captured all the World's records, had done great flights, and had beaten us in the Schneider Trophy contest. Also the Americans had developed the scout aeroplane so that theirs were far before those of any other country.



CLEANLINESS.—The English Electric Co.'s Kingston flying-boat (two Napier Lions) with duralumin hull, designed by Mr. W. O. Manning. A demonstration of how cleanliness of design and large size may be combined. The absence of centre-section struts is noticeable.

Turning to the history of aviation he said that after the War the contest for speed began. The record for speed climbed painfully a few miles each year, but the landing speeds of the fast machines went up still more quickly and became dangerous. It began to look as if the flying machine with wings of fixed area was reaching its limit. Rumours of American performances were received with incredulity.

The technical facts which limited speed and entailed fast landings were regarded as Acts of God. Cylinder heads stuck out, radiators absorbed power, wooden airscrews of thick section were used, two-spar wings with fabric covering grew in weight as they were made stronger to stand the high speeds.

But in 1923 American machines (designed in 1922) arrived in this country which showed technical progress. Obviously new brains were at work. And in spite of the lightness and speed of these machines they had a safety factor of over twelve, much higher than our own, and they alighted at a reasonable speed. Their engines were designed to limit frontal area and to streamline into the fuselage.

From that date the story of speed in the air moved to America. The Americans did not nibble at the speed record, they took big bites at a time. The symptoms of a limit of speed disappeared.

The new records were made with an actual decrease in landing speeds. To-day the landing speed was down to 72 miles an hour by the regulations of the Pulitzer Trophy contest, but the top speed was 268 miles per hour. Mr. Gilmore of the Curtiss Company had told him that he could get over 300 m.p.h. with a raised but safe landing speed, only he was limited in producing such a machine by Mr. C. M. Keys, the President of the Curtiss Company, who had himself been one of the prime movers in having a limited speed of racing machines instituted in the interests of the safety of the pilots.

Obedience to Nature.

Technically there had been no revolutionary novelty or change in design. The Conquest of Nature could only be achieved by strict obedience to Nature's Laws. (This is a great fundamental truth which very few people recognise.) The Law we had to obey was that which decrees that air resistance becomes less as area is reduced. We went to America to compete for the Schneider Trophy in disobedience to Nature, and we lost.

There was no more amazing engineering product than the British Napier engines which we use. But they had not been confined within the necessary limits of space. The Supermarine monoplane was a magnificent production, but it was just too large in the fuselage.

Mr. Fairey said, with emphasis, that he stated the facts frankly with a view to getting the Schneider Trophy back to this country. There was nothing wrong with our organisation. Nobody could have done more for the British team than did Captain Charles Wilson and Colonel Darby and Major Buchanan. The arrangements at Bay Shore were inadequate for the weather which was experienced. The quarters for the mechanics were inadequate. The Americans were deeply concerned about this, but nothing could be done to improve it in the time available. It was nobody's fault that there was a last-minute scramble to get our third machine ready.

Why We Lost.

As to piloting, Mr. Fairey said that some people alleged that the American piloting was better than ours because of the practice the Americans had had. This was not the case. The American racing machines never flew before the race, except for their preliminary tests. The Americans had nothing on which to practise. Outside the Pulitzer and Schneider contests the American pilots only did two flights of half-an-hour each. Doolittle was the only pilot who had had experience of speed. And the Americans themselves said that Broad was a better pilot than anybody there except Doolittle.

We lost simply because our machines were not fast enough. We had got to learn from America how to reduce the frontal area of engines and fuselages and we had got to be quick about it.

Our tendency was to put our heads ostrich-fashion in the sand. There was no use in saying that the Americans beat us in speed but that we were better in other ways. They could beat us in other ways as well by sheer concentration if they tried.

They beat us already in scout aeroplanes. They were now making a reconnaissance two-seater which beat us by just as much. Our system of research needed reform. British research started in unfathomable space and was diffused in all directions. The Americans concentrated their research like a searchlight on one problem and solved it. We must face facts.

Civilian Flying.

As to private flying, as distinct from subsidised air line flying, were were far behind the States. He himself saw over a hundred privately-owned machines at the Pulitzer Trophy contest and the owners of these machines regarded them as a normal means of transport. As an American said to him on this subject, they had "no control over aviation but a hell of a lot on flying."

In England one had to get certificates for everything. That was what made English aeroplanes fit for heroes to fly in. But if an English aviator wanted to take his best girl to Brighton by air he had to get an A certificate for himself and put in his time blowing mercury out of a tube (to prove his lung-power). And then when he had got an airworthiness certificate for himself and his machine he had to wait for a ground-engineer who having certified the machine as airworthy before it left Croydon had to go to Brighton and certify that it was fit to fly back again.

The American idea was that flying was better than control. American speed was not the result of Government spoon-feeding but of keen competition. It was largely due to the Curtiss firm and to Mr. Keys who had re-established the technical good-will of the firm. We had been beaten by private enterprise.

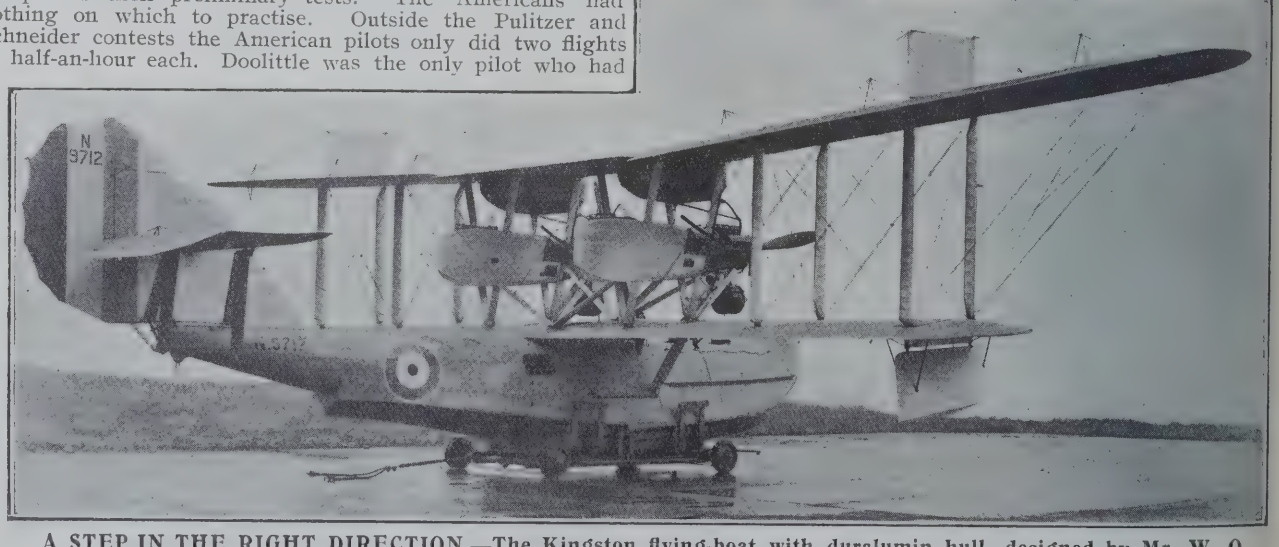
Another View.

Mr. F. Handley Page said that he rose with great diffidence before this august gathering. He felt like a rose between two thorns, sitting as he did between Mr. Vane of the Napier Company and Mr. Fairey of the Curtiss Company. In fact, he said, he felt like a carburettor between two cylinder blocks and quite liable to catch fire.

He said that he could not disagree from Mr. Fairey on the subject of Government interference. There was too much interference in this country, and he mentioned that when His Majesty the King at the last R.A.F. Pageant wished to give verbal orders by wireless to the squadrons in the air he was prevented from doing so by radio interference.

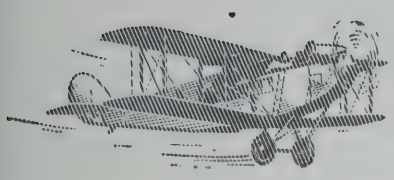
He congratulated America on her extraordinary progress in the last few years. When our Associates—he understood that they were not legally Allies—from America came over and won the War, we gave them all our aeronautical experience. The first fruits of our labours were handed to America. And the American Commission which came over here after the War allocated in all a matter of £100,000 to British aeronautical designers. His own firm, he remarked, received a totally inadequate proportion of this amount.

Starting thence nine years ago America had made wonderful



A STEP IN THE RIGHT DIRECTION.—The Kingston flying-boat with duralumin hull, designed by Mr. W. O. Manning of the English Electric Co. Another step towards the abolition of the water-logged wooden hull.

Napier Again!

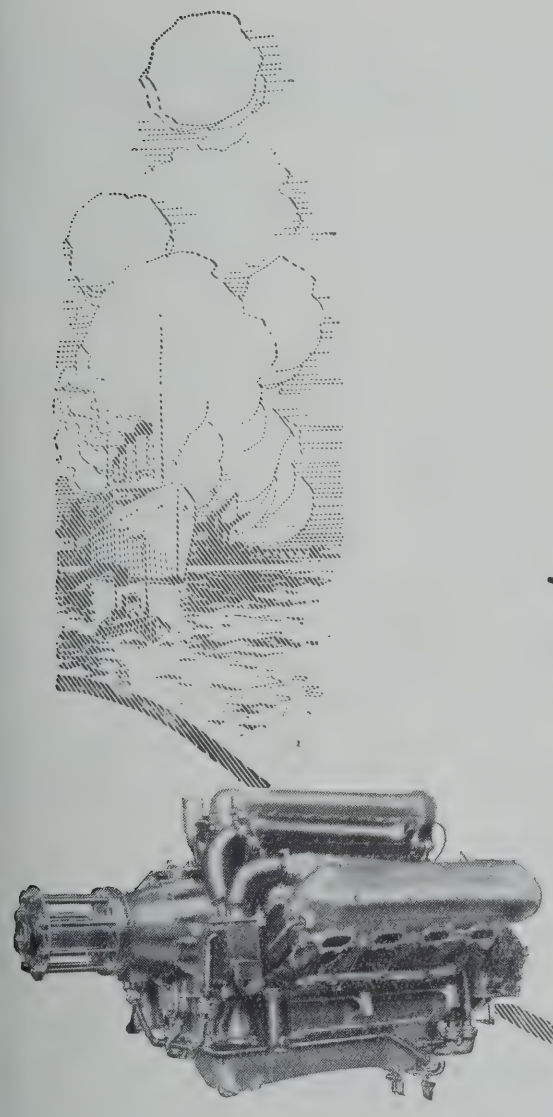


THE British Air Ministry recently carried out a cruise with a flight of Supermarine "Southampton" flying boats each engined with two Napier "Lions."

The cruise, lasting 20 days, covered 10,000 miles, and demonstrated the facility with which modern flying boats can work away from their base under any weather conditions.

Apart from the wonderful efficiency of the Supermarine flying boats, this flight further demonstrates the extraordinary reliability of the British-built Napier aero engines.

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progress. But we could win trophies and records if we set our minds on doing so. What we needed was not to reduce the frontal area of our machines but the obtuse resistance of people in this country.

We should have to move along new lines of research to get recognition. And he added that many a flower blushed unseen at Cricklewood.

There were two objects to be desired. The first was to have the prestige of holding World's records, that is for speed, height and weight lifted. But most of our constructors made military aircraft. Which meant that every machine after it was produced went into seclusion for twelve months (at the R.A.F. Experimental Establishments). Might not firms be allowed some latitude to use these machines for record-breaking purposes while they were still new?

He pointed out that it was good for the Air Ministry politically to have performances known. They would get more money for the Roval Air Force by such propaganda. There was no publicity like that of breaking records.

Secondly he wanted to see Civil Aviation developed. Making military aeroplanes was only like making uniforms for a police force. We could if we wished link up the Empire by air lines as America had linked up the opposite sides of the United States. He wanted an Empire mail like the American air mail.

An Official Compliment.

Sir Philip Sassoon congratulated Mr. Fairey and Mr. Handley Page on their speeches and said that they were a loss to the House of Commons. He said how glad he was to see Mr. Broad after his trying experiences in the States. And he added that he had never heard the limitations on Civil Aviation better expressed than by Mr. Fairey.

Science and Sense.

Colonel Bristow said that he regarded Mr. Fairey's speech as one of the finest he had heard. It was temperate in tone and almost judicial in character. But there were other ways of looking at the present state of affairs. One could use the rosy glasses of the English optimist as well as the green spectacles with yellow spots of the pessimist.

In this country we had no speed races worthy of note. Since the War we had been compelled to race old machines in handicaps because there was little money to spare to build speed machines, owing to our heavy taxation. But we might remember that in the Schneider Trophy contest only 33-1/3 per cent. of the American starters finished whereas 100 per cent. of the British finished.

Personally he disbelieved in the official landing speed of the Pulitzer Racers. If the speed was only 75 m.p.h. why need the pilots have carried parachutes and have had fuselages designed to split and let them out?

He advocated the spending of more on research, in which work should be done for 24 hours a day. The money would be better spent than on reconditioning aeroplanes of 1916 designs.

The Expert.

Major Stewart, formerly a scout pilot in the R.A.F., pointed out that the Ferbois (Bernard) Monoplane had put up a World's speed record of 278 m.p.h. and that the Gourdou-Leseurre had raised the height record to 40,000 feet. And both had done it with an engine of the "broad-arrow" type.

An Un-official Opinion.

Major Buchanan of the Air Ministry said that he thought multi-sparred wings with wooden covering were heavier than fabric wings and would increase the landing speed.

He hoped that our private constructors would try to defeat the Curtiss machines. They certainly must make an effort. But he did not believe that we could beat the Curtiss machines in one year.

He did not agree with Mr. Fairey that the Americans were ahead of us with their pursuit aeroplanes.

A Business View.

Lieut.-Colonel Darby thanked the designers and pilots for all that they had done this year. He said that he could not disagree from Mr. Fairey, except that he believed that the Americans were not ahead of us in types other than scouts and that they were not ahead in research.

As to Civil Aviation the country in the United States was better suited for private flying than was this country.

The Soft Answer.

Mr. Fairey, replying, suggested that Mr. Handley Page would do better at the Bar than in the House of Commons. He said that in the States public interest brought money into aviation. Personally he was convinced that the landing speeds stated for the Pulitzer Racers were correct because of the way the designs were tested.

Parachutes were a standard fitting for all American pilots and in the Pulitzer contest pilots considered that if an engine stopped over the bad country outside Mitchel Field they would have a better chance of escaping alive by zooming the machine up to a few thousand feet and getting out with a parachute than they would have by trying to land at 70 miles an hour amid rocks and woods.

As to French records, the Ferbois to get its speed had its wings cut down and landed at over 100 miles an hour. That was not a technical achievement. When Mr. Gilmore said that he could get 285 m.p.h. with the limited Pulitzer landing speed he would certainly do it. Deduct from that speed the drag of the floats and we know what next year's American machines would do for the Schneider contest.

As to the American scout machines (or pursuit ships) they actually did 178 m.p.h. and had a ceiling of 22,800 feet. How was that inferior to our machines And eye-witnesses could prove the manœuvrability of the American scouts.

Here, once again, one would like to state that at Dayton a year ago one saw the late Captain Bert Skeel take a standard P.W.8 down in a dive, zoom it up quite vertically, do two rolls spirally upwards and then fly out flat on the top of the second roll. Can any European machine do that? And at the same meeting ten standard P.W.8s started in a race. The fastest did 175 m.p.h. for something over 100 miles and the slowest, which for test purposes had already done over 100 hours' flying without its engine being touched,, did 168 m.p.h. Can any European Service scout touch that?

As to next year, Mr. Fairey said that he would welcome the news if the Air Ministry decided to train pilots for the speed races. But he hoped that they would not exclude civilian pilots.

It is true that as a nation we were fighting at a disadvantage owing to our taxation. But the money voted for the U.S. Air Service was less than ours. The Schneider contest machines were ordered by the U.S. Government, but they were bought subject to their reaching a certain contract speed.

In this country we needed an entire change of attitude. And we must face facts.

Diplomacy.

Lieut.-Colonel McClean, Chairman of the Aero Club Committee, thanked the Duke of Sutherland for presiding and said that these dinners would not in any way interfere with the meetings of the Royal Aeronautical Society at which highly-scientific subjects were discussed at five o'clock in the afternoon.

A Personal Opinion.

Altogether it was a very enjoyable affair. Some seventy members sat down to dinner and many more were refused admission, simply for lack of space. Mr. Frisbee, the Club steward, excelled himself. The whole staff of the Club were called into requisition and made to do duties for which they were not trained. One may add that the Club page-boy made an excellent wine steward.

In spite of the unprecedented pressure on the kitchen the food was perfectly cooked and served hot, and, of course, as Mr. Frisbee bought it himself it was of the best quality. One has paid half a guinea for many a dinner that was nothing like as good.

The discussion was a little disappointing because many of the people who had the most knowledge of the subjects discussed have not the ability to speak when on their hind legs. Consequently the conversation after the discussion was in sundry details more illuminating than the discussion itself. But Mr. Fairey has certainly done a service to British aviation by stating his views so frankly.

Although one's own knowledge of American aviation is now twelve months out of date one can confirm everything Mr. Fairey said. And he could have said exactly the same twelve months ago with equal accuracy. One said very similar things oneself, and about all one got for one's pains were threats of cancellation of advertisements in this paper. But at the risk of again incurring the displeasure of some people in the Aircraft Industry one feels that it is one's duty to endorse every word that Mr. Fairey said and to emphasise as much as one can his dictum that—We must face facts.—

C. G. G.

After the Port.

When one heard that Mr. C. R. Fairey was to open a discussion at the Royal Aero Club on "American Aviation," one imagined, from having read in the daily and other press of the wickedness and cupidity of the said Mr. Fairey, in the matter of selling so many aeroplanes and buying American engines, that the affair would develop into a sort of performance of "Mercenary Fairey." One imagined that he would open by singing to American Aviation that well-known song, "I'm a little bit fonder of you than of myself," or that at least he might sing, "Money, I'm in love with you."

Instead of this he adopted towards British engines the tone of such songs as "I'm thinking of you," and "They still look good to me."

Far from living up to his nick-name of the "Mussolini of British Aviation," Mr. Fairey opened his speech in a manner reminiscent of a scout-master explaining how the day's good deed was done.

One was very glad to see that he has revised his opinion, expressed this Summer, on the speeds which may be expected from racing seaplanes. One could only wish that he



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The "Fox," which is being supplied in quantities to the Royal Air Force, stands at the forefront of aerial equipment to-day.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

had made such a clear and lucid statement of facts at an earlier date. One is under the impression that he was rather misleading when he said that the U.S. pilots in the Schneider Contest had not had much previous practice on racing machines. They had all flown racing machines which were nearly as fast as those in the contest.

Had not Mr. Fairey spoken for 45 minutes and had not Mr. Handley Page exceeded his allotted ten minutes, had there not been so many more eminent speakers present, and had there not been such a continuous exodus towards the tail end of the speeches showing over-saturation (verbal), and had one not felt that one had in these columns a private pulpit the use of which would not detain listeners further, one would have got up and made these remarks then.

But Major Oliver Stewart and oneself were entirely surrounded by Mr. Lappin of Rolls-Royce, Mr. St. Barbe of the De Havilland Co., and Major Barlow of the Fairey Co., and so one felt overwhelmed by sheer weight of numbers.

British engines were well represented and showed that they were not overawed in any way by Americanism. Mr. Vane and Mr. Jones held the Napier standard, Mr. Pooley and Mr. Lappin kept the Rolls-Royce flag flying, and Sir Henry White Smith and Mr. Roy Redden, of Bristol fame, represented our premier radial engine makers.

One is told that the next discussion will be on "Whether Bowler Hats are Hard," to be opened by Mr. Perrin.—G. D.

The Second House Dinner of the R.Ae.C.

The second Monthly House Dinner of the Royal Aero Club will take place on Wednesday, Dec. 16, at 19.30 hrs. Air Vice-Marshal Sir Sefton Brancker, Director of Civil Aviation, has consented to open a discussion on "Civil Aviation." The Duke of Sutherland will preside. Members are advised to book their seats early as the congregation is limited to about sixty people.

The subject for discussion should afford considerable opportunity to would-be debaters. One has never heard Sir Sefton make a bad speech. His speeches are rather like beer as esteemed by the British workman who said "There is no bad beer, but some is better than others." In the unrestricted atmosphere of the Royal Aero Club Sir Sefton has a fine opportunity of being provocative.

Those who want to express their opinions on Civil Aviation can do so without fear of offending anybody's susceptibilities. One suggests that somebody might put forward the American point of view that the less there is of control the more there is of flying. There should also be an opportunity for discussing whether the Government Subsidy should be confined to one firm or distributed among all the firms which do good work for Civil Aviation.

At any rate the discussion should be interesting and amusing. And one hopes that members who have not hitherto made a custom of speaking at aeronautical meetings will have the courage to get up and say a few words. It will be a pity if at these House Dinners it becomes the custom for the debate to be confined to the few people who habitually make speeches at all aeronautical gatherings. Their speeches are generally so good that they discourage less practised speakers from saying anything.

A BRITISH SUPERCHARGED ENGINE.

Somewhere in the dark ages of 1916-17 rumours of experiments with supercharged engines for aircraft were in circulation in aeronautical circles in this country. Before the cessation of hostilities Germany had supercharged engines flying. Since then the Rateau supercharger has been developed to a very marked extent in France, and standardised supercharger equipment for certain types of engines have been adopted for Service aircraft.

In America the General Electric Company have developed the Rateau type of supercharger to a high degree of perfection. In the U.S. Army and Navy Air Services supercharged engines are standard equipment in the newer types of "airplanes," in long-range bombers as well as in high-altitude fighters. Provision for the fitting of superchargers is specified in all modern airplane designs.

In May, 1924, Lt. McReady, U.S. Army, established an altitude record of 10,741 metres (35,340 ft.) with a G.E.C. supercharger on a Liberty engine. In October, 1924, M. Calligo, with a Rateau supercharged 300 h.p. Hispano, put the record up to 12,066 m. (39,500 ft.). Both these performances are outside the capabilities of engines without superchargers.

To-day it is common knowledge in the Aircraft Industry, but no more than rumoured beyond those limits, that a turbine supercharger has been fitted to an engine of the Napier Lion type, and that this engine has been installed in a proprietory type of Service two-seater and has flown.

Details of the engine and the supercharger are all veiled in secrecy—in fact from rumours that are current concerning the action of the supercharger on preliminary flights it would seem that the Air Ministry has successfully kept secret from the British Aircraft Industry the accumulated knowledge and experience on the subject of supercharging in practice which is current in the countries of two of our late allies and one at least of our late enemies.

AVIATION IN THE PUBLIC SCHOOLS.

A scheme to cultivate an interest in aviation amongst the people at public schools has been promoted by Major V. Stammers and Major H. Hemming of the Aircraft Operating Co. Ltd., and submitted to the Air Ministry by the Air League of the British Empire.

The scheme is to send an aeroplane and a pilot, who is also a lecturer, round to the various public schools to give a course of lectures followed by passenger flights to those persons whose parents wish them to make a study of aviation.

The course of lectures is to include the elementary theory of flying; the construction, maintenance and equipment of aircraft, also their possibilities and limitations; Service flying in War and Peace; Civil Aviation, including survey—photographic work, air transport, advertising, racing, etc., and piloting and observing.

The author of the scheme points out that the propect of the course of practical flying which will follow the lectures will undoubtedly stimulate interest in the lectures themselves.

The author thinks that parents, the most likely source of opposition to his scheme, can be overcome by persuasion, especially when it is made clear to them that safety is to be the first consideration.

Flying would only take place under the best possible weather conditions and no stunting would be allowed. Strict precautions would also be taken in the choice of landing grounds, warm clothing for passengers, etc.

From the point of view of the R.A.F. the scheme seems to be an excellent one, for, although it distinctly states that no influence would be brought to bear on people which might induce them to change their intended careers, at the same time the public school is more of an educational starting point than the Universities.

The Aircraft Operating Co. Ltd. points out that it would require the Government to guarantee the scheme against loss up to about £3,000. The D.H. Moth machine would be used, specially modified to carry two passengers and pilot.

Mr. Alan Butler, the Chairman of the Company, has made a definite offer on behalf of the Company to equip and maintain the flying unit on the basis of a fee of one guinea per passenger per flight plus the course of lectures, or a fee of 5s. 6d. for the lecture course only.

THE 1926 SCHNEIDER TROPHY CONTEST.

Verily truth is stranger than fiction. Here we are five weeks after the Schneider Trophy Contest was lost and so far the Air Ministry have *done* nothing. Various members of it have talked a lot but so far nothing has been done.

Can it be that the Air Ministry do not yet realise the importance to the design of aircraft and to our trade abroad of building machines capable of winning the Schneider Trophy Contest?

To have any success all machines *must* be flying at the end of March so that a modified version can be produced by June and then serious practice can begin. It is already late, and much valuable time has been lost. But there comes a critical moment when, as was the case last year, the phrase "better late than never" becomes a fallacy. This moment will shortly arrive, and unless the Air Ministry act (not talk) at once the golden opportunity will have passed.

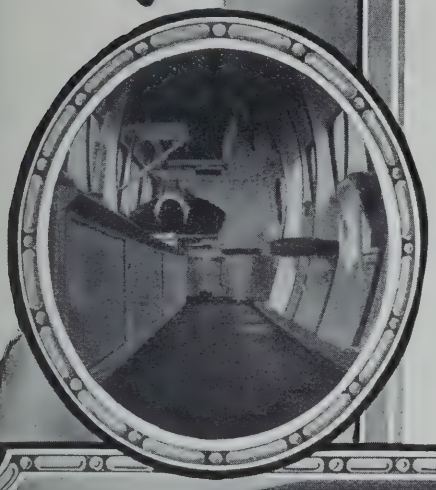
The aircraft firms ought not now still to be singing "What'll I do," they should in a few weeks be able to point to the finished racer and sing, "Yes, Sir. That's my baby."

There is a rumour to the effect that the Air Ministry proposes to make an open offer to the Aircraft Industry, in the shape of a promise to buy for a fixed sum any and every single-seat seaplane capable of attaining or exceeding a speed which is judged good enough to win the Schneider Trophy. Presumably that speed will be anything in excess of 265 m.p.hr.

If this rumour be correct it will be up to the Trade to take a little risk on its own account by backing its faith in its own designers to the extent of the cost of a racing machine. How many designers are there in this country competent to design a 265 m.p.hr. machine and how many firms are prepared to back their beliefs?

It is further rumoured that it is very unlikely that a Schneider contest will take place at all next year. The weather conditions suffered this year clearly show that the contest should be flown, as originally arranged, in the Spring. The Americans realise that next Spring is too soon and so the next race is likely to take place in the Spring of 1927. But that is no excuse for doing nothing until Xmas, 1926.

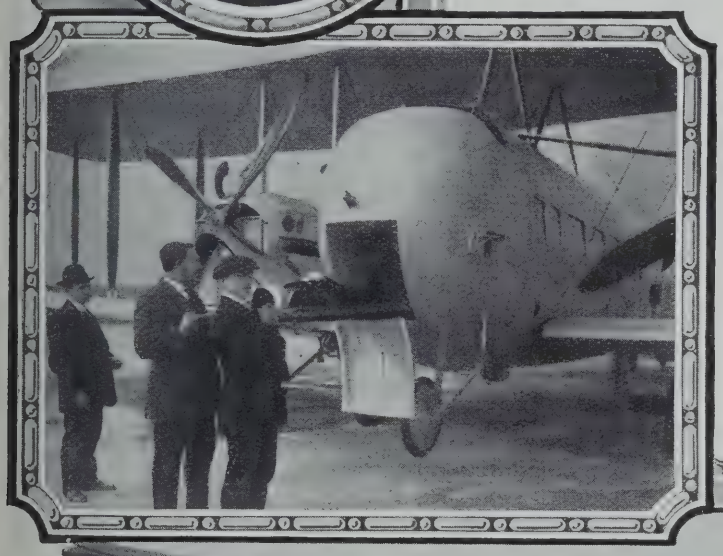
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THE ROYAL AIR FORCE.

The London Gazette

Nov. 24.

GENERAL DUTIES BRANCH.—Plt. Off. G. D. Gibson is promoted to the rank of Flg. Off. (June 15); Flg. Off. G. D. Gibson relinquishes his S.S. comn. on account of ill-health (Nov. 25). The S.S. comn. of Plt. Off. on probation T. H. Rowlands is terminated on cessation of duty (Nov. 25).

STORES BRANCH.—Flt. Lt. W. R. Fairbairn resigns his perm. comn. (Nov. 25).

MEDICAL BRANCH.—H. I. Clapperton (temp. Lt., Dental Surgeon, General List, Army) is granted a temp. comn. as a Flg. Off. on attachment to the R.A.F. (Nov. 2). He will continue to receive emoluments from Army Funds.

RESERVE OF AIR FORCE OFFICERS.—F. R. Matthews is granted a comn. in Class A.A., General Duties Branch, as a Plt. Off. on probation (Nov. 9).

Appointments.

Week ending Nov. 30.

GENERAL DUTIES BRANCH.—Air Commodores J. G. Hearson, C.B., C.B.E., D.S.O., to H.Q., Special Reserve and Auxiliary Air Force, on appointment as Air Officer Commanding, 1/12. R. H. Clark-Hall, C.M.G., D.S.O., to H.Q., Mediterranean, to command, 14/11.

Group Captains P. H. I. Playfair, M.C., to H.Q., Coastal Area, for duty as Chief Staff Officer on ceasing to be non-effective, 16/11. C. T. Maclean, D.S.O., M.C., to Station H.Q., Hinaidi, Iraq, 18/11.

Wing Commanders J. T. Babington, D.S.O., to H.Q., Iraq, 18/11. M. Spicer, to No. 7 Group H.Q., Andover, for Technical Staff duties, 23/11. C. W. H. Pulford, O.B.E., A.F.C., to Cairo-Cape Flight, Northolt, to command, 6/11.

Squadron Leaders D. E. Stodart, D.S.O., D.F.C., to No. 84 Sqdn., Iraq, 18/11. E. R. Vaisey, to Aircraft Depot, Iraq, 18/11. J. O. Archer, C.B.E., to No. 31 Sqdn., India, 18/11. J. S. T. Bradley, O.B.E., to No. 7 Sqdn., Bircham Newton, on transfer to Home Estab., 19/11. A. S. C. S. Maclaren, O.B.E., M.C., D.F.C., A.F.C., to No. 20 Sqdn., Egypt, 18/11. F. J. Linnell, O.B.E., to H.Q., Air Defences of Great Britain, 9/11. E. R. L. Corballis, D.S.O., to H.Q., Palestine, 30/10.

Flight Lieutenants F. McB. Paul, to No. 5 F.T.S., Sealand, 23/11. B. J. Silly, M.C., D.F.C., to H.Q., Egypt, 8/10. J. R. F. Randell, D.F.C., to No. 4 F.T.S., Egypt, 1/10. E. C. Emmett, M.C., D.F.C., to Cairo-Cape Flight, Northolt, instead of to R.A.F. Depot as previously notified, 9/11. P. H. Mackworth, D.F.C., to Cairo-Cape Flight, Northolt, 16/11. E. J. L. Hope, A.F.C., to Cairo-Cape Flight, Northolt, 9/11. L. E. M. Gillman, to Cairo-Cape Flight, Northolt, 18/11. J. A. Gray, D.F.C., to Experimental Section, R.A.E., S. Farnborough, 30/11. C. F. Chinery, to No. 2 Arm. Car Coy., Palestine, 18/11. The following to date 18/11:—J. R. I. Scambler, A.F.C., and C. H. Stilwell, to H.Q., India. J. W. Young, M.B.E., to No. 1 Wing H.Q., India. C. R. Strudwick, to No. 31 Sqdn., India. A. S. G. Lee, M.C., to No. 5 Arm. Car Coy., Iraq. E. J. D. Townsend, to Aircraft Depot, Iraq. A. F. Lang, M.B.E., and A. C. Stevens, to H.Q., Iraq. C. Findlay, D.F.C., to No. 6 Sqdn., Iraq. R. L. Sweeny, to No. 4 Arm. Car Coy., Iraq. K. A. Meek, M.B.E., to H.Q., Iraq. C. Turner, A.F.C., to Aircraft Depot, Egypt, 25/10. A. J. Long, to Aircraft Depot, Egypt, 6/11. D. Colyer, D.F.C., to H.Q., Iraq, 25/10. J. A. Sadler, to R.A.F. Depot on transfer to Home Estab., 14/11. H. Hackney, to R.A.F. Depot on transfer to Home Estab., 14/11. J. I. T. Jones, D.S.O., M.C., D.F.C., M.M., to No. 216 Sqdn., Egypt, 17/10.

Flying Officers C. H. Johnson, to Inland Water Transport, Iraq, 1/11. F. H. Davis, to No. 4 Apprentices Wing, Cranwell, 26/11. P. D. Baker, to No. 5 F.T.S., Sealand, 23/11. R. Collins, to M.A.E.E., Felixstowe, 23/11. E. S. Brinsmead, to M.A.E.E., Felixstowe, 30/11. H. A. Castaldini, to No. 14 Sqdn., Palestine, 18/11. E. W. T. Crouch, to Aircraft Depot, Egypt, 18/11. (Hon. Flt. Lt.) J. C. E. A. Johnson and G. J. Southam, to No. 208 Sqdn., Egypt, 18/11. W. L. Payne, to Cairo-Cape Flight, Northolt, 6/11. The following to date 18/11:—A. A. C. Hyde, to No. 70 Sqdn., Iraq. R. C. B. Brading, D.F.C., to Station Commandant, Basrah. J. S. Harrison, to No. 5 Arm. Car Coy., Iraq. C. H. Flinn, to No. 55 Sqdn., Iraq. T. J. E. Thornton, D. M. Fleming and J. R. Brown, D.F.C., to H.Q., Iraq. J. W. Caddy, to Inland Water Transport, Iraq. G. G. H. Du Boulay, to No. 45 Sqdn., Iraq. J. E. L. Drabble, to Stores Depot, Iraq. F. C. Farrington, M.C., and C. F. Steventon, to No. 6 Sqdn., Iraq. R. H. S. Spaight, to No. 84 Sqdn., Iraq. W. M. M. Hurley, N. S. Paynter, C. P. M. B. Caillard and S. F. Coleman, to Aircraft Depot, India. C. N. H. Bilney, A. B. Smith, M.C., and F. V. Beamish, to No. 5 Sqdn., India. B. H. C. Russell, to No. 20 Sqdn., India. D. C. Prance, to No. 60 Sqdn., India. J. B. Knocker, to No. 28 Sqdn., India. W. I. M. Akerman and A. D. Davies, to No. 31 Sqdn., India. G. I. C. Peacock, J. L. F. Fuller-Good and E. C. de V. Lart, to No. 27 Sqdn., India. F. W. Foster, D.F.C., D.S.M., to No. 27 Sqdn., India, 2/10. H. N. Thornton, to No. 14 Sqdn., Palestine, 12/11. C. G. Hancock, to R.A.F. Depot on transfer to Home Estab., 14/11. (Hon. Flt. Lt.) R. Kennedy, to R.A.F. Base, Malta, 31/10. A. M. Rowe, to No. 6 Arm. Car Coy., Iraq, 8/11.

Pilot Officers A. F. Hutton, J. C. Marcy and D. Robinson, to No. 5 Sqdn., India. G. W. P. Irwin, to No. 31 Sqdn., India. C. Feather and H. S. Martin, to Aircraft Depot, India. A. N. Francombe, to No. 27 Sqdn., India. W. V. R. Nicholl, to No. 70 Sqdn., Iraq. L. S. Birt, to No. 1 Sqdn., Iraq. F. M. Denny, to No. 30 Sqdn., Iraq.

MEDICAL BRANCH.—Squadron Leaders R. W. Ryan, M.B., to Aircraft Depot, Egypt, 17/10. F. E. Johnson, to No. 4 F.T.S., Egypt, 17/10. A. J. O. Wigmore, M.B., to H.Q., Iraq, 18/11. Flight Lieutenants G. H. H. Maxwell, M.B., to No. 216 Sqdn., Egypt, 5/11. J. Prendergast, M.B., B.A., to No. 24 Sqdn., Kenley, 13/11. E. D. D. Dickson, M.B., F.R.C.S. (E), D.L.O., to R.A.F. British Hospital, Iraq, 18/11. Flying Officers R. J. K. Chattey, to A. and A.E.E., Martlesham Heath, 19/11. T. Glynn, M.B., to R.A.F. Depot on transfer to Home Estab., 30/10. G. J. Hanly, M.B., B. W. Cross, J. MacC. Kilpatrick, M.B., C. G. J. Nicholls, M.B., and R. F. G. Dickson, to H.Q., India, 18/11. W. A. Beck, M.B., D.P.H., to H.Q., Palestine, 18/11.

MEDICAL BRANCH.—Squadron Leaders R. W. Thomas, O.B.E., to R.A.F. Depot on transfer to Home Estab., 15/11. T. Bell, M.M., to Stores Depot, Egypt, 18/11. W. E. Aylwin, O.B.E., to Aircraft Depot, Iraq, 18/10. Flight Lieutenants L. H. Hillier, to H.Q., Iraq, 30/10. F. J. W. Humphreys, to Station Commandant, Basrah, 28/10. Flying Officers W. B. Francis, to No. 601 County of London Sqdn., 16/11. A. J. Adams, to No. 600 City of London Sqdn., 26/10. L. N. Sargent, to No. 1 Sqdn., Iraq, 18/11. F. W. Taylor and F. W. V. Blommestein, to Stores Depot, Iraq, 18/11. W. A. G. Goldsworthy, to No. 27 Sqdn., India, 18/11. S. R. L. Poole, to Aircraft Depot, India, 18/11. C. N. Scott, to Aden Flight, Aden, 18/11.

ACCOUNTANT BRANCH.—Flying Officers A. C. Pritchard, to School of Balloon Training, Larkhill, on transfer to Home Estab., 23/11. A. J. Moore, to Engine Repair Depot, Egypt, 2/11. D. F. A. Clarke, to H.Q., Egypt, 18/11. E. W. Horncastle, to No. 55 Sqdn., Iraq, 10/11.

CHAPLAINS' BRANCH.—The Rev. J. G. Stephens, M.A., to Station Commandant, Hinaidi, Iraq, 18/11.

The Late Queen Alexandra.

The Air Ministry announces that the following letters have passed on the occasion of the death of Her Majesty Queen Alexandra:—

Air Ministry, Kingsway, W.C.2, Nov. 23, 1925.

Dear Lord Stamfordham,—I am directed by the Secretary of State for Air, on behalf of the Air Council, and in the name of the Royal Air Force, to ask that you will be good enough to submit to the King, with their humble duty, an assurance of their deep and respectful sympathy with His Majesty in the bereavement he has suffered by the death of Her Majesty Queen Alexandra.—Yours very truly, W. F. Nicholson (Secretary of the Air Ministry).

The Right Honourable The Lord Stamfordham,
G.C.B., G.C.V.O., G.C.I.E., etc., etc.

Buckingham Palace, Nov. 24, 1925.

Dear Sir Walter Nicholson,—Your letter of the 23rd instant has been laid before the King: and I am desired to express His Majesty's sincere thanks for the kind words of sympathy in his great sorrow which you have conveyed on behalf of the Air Council and of the Royal Air Force.—Yours very truly, Stamfordham.

Sir Walter F. Nicholson, K.C.B.,
Secretary of the Air Ministry, Kingsway, W.C.2.

Fatal Accidents.

The Air Ministry regrets to announce that as a result of an accident at Hinaidi, Iraq, to a D.H.9a, of No. 30 Sqdn., Hinaidi, on Nov. 23, Flg. Off. Joseph Albert Moore, the pilot of the aircraft, and No. 354797 AC.1. Arthur Algernon Rickard were killed.

The Air Ministry regrets to announce that as a result of an accident near Upavon Aerodrome, Marlborough, Wiltshire, to a Sopwith Snipe of No. 3 Sqdn., Upavon, on Nov. 26, Flt. Lt. James Anderson Slater, M.C., D.F.C., and Plt. Off. William John Reginald Early were killed.

The Cairo-Cape Town Flight.

In connection with the R.A.F. Cairo-Cape Town-and-back flight, which is due to start in March, five Fairey III D (Napier) have been reconditioned by the Fairey Aviation Co., Ltd. and some of them are now at Northolt.

A Flight of R.A.F. personnel officially called the Cairo-Cape Flight has been now formed at Northolt, composed of Wing Cdr. C. W. H. Pulford, O.B.E., A.F.C., in command, and Flt. Lts. E. C. Emmett, M.C., D.F.C., P. H. Mackworth, D.F.C., E. J. L. Hope, A.F.C., and L. E. M. Gillman.

These officers have been picked from various R.A.F. units specially for this journey. Their names appear in the current list of R.A.F. Appointments.

The Air Defences of Great Britain.

An announcement has appeared in various daily papers to the effect that the Air Ministry has purchased Bentley Priory, Stanmore Hill, and that the Headquarters of the Inland Area will be moved there.

The various moves will probably take place on Apr. 1, 1926, from which date the appointment of Air Vice-Marshal Brooke-Popham to the command of the Fighting area, Home Defence Force, takes effect.

The headquarters of the Fighting Area will be at Hillingdon House, Uxbridge.

According to the current Air Force List, the Air Defences of Great Britain has its Headquarters temporarily at the Air Ministry.

R.A.F. SPORTS AND PASTIMES.

Association Football.

Cambridge University beat the R.A.F. at Cambridge on Nov. 26, by 5 goals to 1. *The Morning Post's* account of the game says:—

Though scoring in the first minute, the Royal Air Force at Cambridge yesterday, proved no match for Cambridge University, who obtained an easy victory by five goals to one. After an early reverse—a capital movement resulted in a score by Bishop—Cambridge showed great form in attack. The R.A.F. goal was in constant danger, but though they had innumerable chances the University failed to get on term

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Major S. A. PACKMAN, Instructor of the Newcastle-upon-Tyne Aero Club.

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before the interval. The play of their forwards at close quarters proved in marked contrast to the mid-field work, the shooting being weak.

On resuming, a marked change came over the game, the University attack infusing much more life into their play in front of goal. Morris made the scores level in five minutes, and following heavy pressure, Lowe placed the University ahead. Thenceforward the Air Force were chiefly on the defensive, and further goals for Cambridge came from Lowe, Robins, and Morris.

Hockey.

The results of the first round of the Royal Air Force Junior Hockey Cup are as follows :—

Spittlegate, a bye; Felixstowe 3, Martlesham 2; Ruislip, walk over, Northolt, scratched; Kidbrooke, walk over, Hawkinge, scratched; Larkhill 6, Upavon (Central Flying School) 1; Lee-on-Solent 4, Farnborough 3; Old Sarum and Upavon (No. 3 Fighter Squadron) byes.

Inter-Service Cricket in Iraq.

A two-days' cricket match was played early in October at No. 45 Squadron's ground, Hinaidi, between the Army and the R.A.F., and resulted in a win for the Army by an innings, four wickets and 78 runs.

The R.A.F. went in first, and were all out for 96, AC. Morris making the highest score of 27. L/Cpl. Dellow (Army) took five wickets for 29 runs.

The Army opened with Capt. Teague and L/Cpl. Hindon, who scored 90, before the latter was bowled by Cpl. Davenport. At the end of the day's play Capt. Teague was 80 not out.

When the Army declared their innings closed on the second day, with 320 for six, Capt. Teague was still in, with 227 to his individual credit, including five sixes and 29 fours. Cpl. Davenport (R.A.F.) took three wickets for 54 runs, and AC. Chapman two for 33.

In their second innings the R.A.F. made a total of 146, Cpl. Clifton scoring 35 and Cpl. Davenport 29.

In an interval in the second day's play, a bat, suitably inscribed, was presented by Group Capt. Board to L-AC. Gough, of No. 1 Sqdn., who holds the highest batting average of the season in R.A.F. cricket in Iraq, and a ball to Cpl. Clifton, of Air H.Q., who has the highest bowling analysis.

Sport in Quetta.

The following is a summary of the sports carried out by No. 28 (Army Co-operation) Sqdn., R.A.F., Quetta, during the months of September and October, 1925 :—

FOOTBALL.—R.A.F. Station, Quetta, v. "B" Divl. Signals, draw 1—1; v. Royal Tank Corps, lost 1—2; v. District Headqtrs., lost 0—1; v. District Headqtrs., won 5—0; v. Royal Tank Corps, draw 1—1; v. "B" Divl. Signals, won 1—0; v. "B" Company the Cameronians, won 3—0.

In addition to the above several Inter-Squadron matches have been played with great keenness, especially between the Squadron Transport Section and a team from the Rest of the Squadron.

Several matches between the Officers and N.C.O.s have been played, and so far neither side have proved themselves the better team.

HOCKEY.—R.A.F. Station, Quetta, v. Grammar School, won 5—4; v. M.T. Group, R.A.S.C., won 4—1; v. Sappers and Miners, won 4—1; v. Grammar School, won 6—3; v. M.T. Group, R.A.S.C., won 7—2; v. Royal Tank Corps, won 10—2; v. 5/10th Baluch Regt., lost 0—1.

The keenness shown in the Inter-Squadron matches played so far shows the promise of a good 1st and 2nd eleven for the Unit during the coming winter season.

OIL SUPPLIES IN WAR.

A lecture was given at the Royal United Service Institution on Nov. 25, by Admiral Sir E. J. W. Slade on Oil Supplies in War.

Admiral Slade said that Great Britain drew 38 per cent. of her oil supplies from the United States, 21 per cent. from South America and 24 per cent. from Persia. He pointed out that the country could not rely upon the American supplies because a country only exported its surplus, and in the event of war the demand for oil would immediately rise to four times the peace consumption.

The lecturer emphasised the necessity for developing those oilfields which were already under our control. This meant that we must look increasingly to the Persian and Eastern fields. Many more fields might be discovered in Persia, and China was as yet a vast unknown area. He did not think there was much prospect of further development in Europe.

The key to the Persian situation lay in Iraq.

In the course of the subsequent debate, Colonel Bristow said that owing to the present policy in regard to engine design in the R.A.F. the spirit used required an admixture of between 20 to 30 per cent. of benzole, which might not be available in war time because it was required for explosives.

In conclusion Admiral Slade said that in war over a wide area it was desirable to be able to prepare the oil supply at refineries near the base of operations and to obviate the need to import to those refineries materials not already in the crude oil.

Admiral Sir Reginald Tupper, who was in the chair, said that he hoped that a wider knowledge of the facts would bring home the necessity of remaining in Iraq and of possessing a Navy capable of bringing to our shores oil that we could not produce ourselves.

IRRIGATION SURVEY IN SOUTH AFRICA.

The members of the Kalahari Survey Expedition, mention of which was made in THE AEROPLANE of August 19, have now returned to the Union. *The Times* Transvaal correspondent, in that paper on Nov. 28, states that the work has been greatly facilitated by the efficient co-operation of the Air Force which carried out an aerial survey of a considerable region which may have an important bearing on the general problem of the watering of the Kalahari.

The aerial map of the region photographed is nearing completion.

Mr. C. H. Douglas, the chief engineer of the expedition, paid a tribute to the fine work of the officers concerned. Capt. Meredith and Lieut. Tasker. He said that their work was often very dangerous, as they had to fly over swamps and bush country where there were no landing places.

THE PARACHUTE AGAIN.

On Nov. 25 two French military single-seater aeroplanes of the Army of Occupation collided in the air over Wachenheim, near Mainz.

One machine went into a spin but the pilot was able to get clear with his parachute and landed safely. The second machine was not seriously damaged and the pilot was able to return to his aerodrome.

It is interesting to note that over one hundred machines of the French Rhine Army are equipped with parachutes.

PRAGUE—LONDON—PRAGUE.

As has already been mentioned in this journal, Lieut. Jira, of the Czecho-Slovak Army, flew from Prague to London and back on an Avia B.H.9 monoplane (60 h.p. Walter engine) between Oct. 6-11. Further details of this flight are now available.

It appears that Lieut. Jira set out to fly from Prague to London and back in two days. He left Prague on Oct. 6 at 07.15 hours in fog and rain and landed at Furth-Nuremberg at 09.30 hours. From Furth he flew to Villacoublay, a distance of 618 kms. in 3 hrs. 45 mins. On the same day he continued his flight to near Folkestone but was compelled to return to Boulogne-sur-Mer owing to thick fog making it difficult for him to pick up the English Coast.

He eventually arrived at Croydon on Oct. 8.

On Oct. 10 he left Croydon to return to Prague, but owing again to fog and a strong head wind he was forced to land at Mainz, where he was held up until the next day. On Oct. 11 he arrived at Prague at 18.20 hours, landing in the dark.

Only weather conditions prevented him from completing the flight according to schedule.

The machine was fitted with tanks capable of holding 198 kgs. of petrol and 15 kgs. of oil, and it is interesting to note that both out and home flights were completed without replenishment of fuel. The total distance of 2,525 kms. (1,568 miles) was covered at an average speed of 140 kms. per hr. (87 m.p.h.).

THE FRENCH ENGINE COMPETITION.

Although the news is not yet official it is reported that the 450 h.p. Renault direct-drive engine has been awarded the first prize of one million francs offered by the Comité Français de Propagande Aéronautique in connection with the aero-engine competition organised by that association. In addition the Renault Company win a sum of 300,000 francs offered by the Sous-Secretariat d'Etat de l'Aéronautique, for the same engine.

Four engines satisfied the tests for the competition, which has now been brought to a close after something like two years. In order of merit these are, (i) the Renault direct-drive engine, (ii) the Panhard-Levassor, (iii) the Lorraine-Dietrich, and (iv) the Renault geared engine, all of 450 h.p. or thereabouts.

A fuller account of this contest will be published on receipt of the official results.

A FRENCH TEST PILOT KILLED.

On Nov. 27, M. Bizot, one of the best-known French test pilots, was killed at Buc while testing a Bleriot Spad 61 single-seater fighter. Towards dusk and with a slight ground fog while flying low down the machine hit a slight rise in the ground. The undercarriage was knocked off and the machine somersaulted several times, finally catching fire. The pilot, M. Bizot, was thrown out, sustaining a fractured skull and other injuries from which he died some hours later, without regaining consciousness.

M. Bizot had since the war been chief pilot to the Bleriot firm. During the war he had been a member of the famous "Cigogne" squadron and in addition to the Légion d'Honneur had been awarded the Medaille Militaire with nine palms.



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A DISPATCH FROM WAZIRISTAN.—*continued.*

22. *Operations.*—The operations opened on Mar. 9, 1925, with attacks on all the sections concerned; the main concentration during the first 4 days being directed against the Abdur Rahman Khel. The hours flown and flights made are given in the Appendix. Several villages in Dre Algad were set on fire, a tower was demolished in the Spli Toi. On the 13th bombing operation ceased as various hostile sections had promised to comply with Government demands. Nothing occurred, however, and action was begun again on Mar. 14. On Mar. 15 the two captured Hindus were brought into Spli Toi Post, and on Mar. 17 the whole hostile and friendly Abdur Rahman Khel jirga arrived at Jandola; operations against this section were in consequence again suspended. The Resident announced the terms to the hostiles, and an agreement was in sight when internal dissensions caused a breakdown of negotiations. Operations were resumed against the Abdur Rahman Khel and continued against the remainder. During the renewed operations some damage was caused to the caves. It was found at this time that various friendly villages were giving shelter to the hostiles and their flocks: these villages were promptly warned by the Resident.

The friendly section of the Abdur Rahman Khel left the Spli Toi area altogether at this period, compelling various hostile sections to return to their own areas. Our action had by this time forced the majority of the hostile sections underground and completely upset their normal life.

One flight from No. 20 (A.C.) squadron was sent up to Tank on Mar. 18 to reinforce No. 5 (A.C.) Squadron.

23. *Settlement with Guri Khel.*—On Mar. 21 Flg. Offs. N. C. Hayter-Hames and E. J. Dashwood, while carrying out a bomb raid, were forced to come down in hostile territory from some cause unknown, their machine being completely wrecked. Flg. Off. Hayter-James was killed instantaneously, and Flg. Off. Dashwood, who fell into the hands of Guri Khel friendlies, died shortly afterwards. Flg. Off. Dashwood's body was brought into Sorarogha on Mar. 22 in face of considerable opposition from the Karim Khel, although the Biland Khel hostiles helped the friendlies, and Karim Khels, after haggling, brought Flg. Off. Hayter-Hames's body in on Mar. 25, together with the rifles demanded. The jirga was interviewed at Jandola by the Political Agent, when they surrendered their leading Malik (Dangar) as security for the payment of the money fine.

24. About this time it became obvious that the operations were likely to be protracted, and it became essential to restrict their intensity in case any other operations became necessary, or the present operations had to be continued indefinitely. The attack on the tribes now developed into an Air Blockade carried out with a diminished force, chief attention being paid to the Abdur Rahman Khel who were reported to be collecting prior to migrating to Afghanistan. These operations were successful. A tower was destroyed in a Maresai village. On Mar. 30 bombing of the Maresai was suspended for one day to allow their jirga to appear at Jandola. Nothing, however, came of these overtures.

25. *Night Flying.*—On Mar. 30 one night flying Bristol Fighter from No. 31 Squadron, Ambala, arrived at Tank to carry out night bombing raids over the hostile area. Parties were despatched to the landing grounds at Sorarogha and Khirgi, with searchlights and landing flares. The first flight was successfully carried out on the night of Apr. 4 and produced a most excellent result. The tribesmen had, hitherto, considered themselves perfectly safe after dark, and the discovery that we could operate at night proved disconcerting. It was arranged, therefore, to reinforce this machine with two more from Ambala. The arrival of these machines on Apr. 6 necessitated some reorganisation of force, which were redistributed as follows:—

Operational Headquarters, Tank.
1 Flight—No. 31 (A.C.) Squadron—Bristol Fighter (for night flying), Tank.
1 Flight—No. 5 (A.C.) Squadron—Bristol Fighter, Miramshah.
1 Flight—No. 20 (A.C.) Squadron—Bristol Fighter, Miramshah.
2 Flights—No. 27 (B) Squadron—D.H.9a, Miramshah.
2 Flights—No. 60 (B) Squadron—D.H.9a, Miramshah.
Searchlight Party, Sorarogha.
Searchlight Party, Khirgi.

It was decided to launch a big offensive on Apr. 4 immediately before the first night raid, and accordingly 38 machine raids were carried out, giving a total of 52½ hours flying. This action caused casualties and the night raid succeeded in killing a notorious Faridai, Tormarchai. A friendly Abdur Rahman Khel jirga appeared at Tank on this day with various irrelevent suggestions which were rejected.

26. On Apr. 9 an afternoon patrol sighted a big collection of Faridai personnel moving up the Dre Algad. This exceptional target was at once engaged, and additional machines called for from Miramshah to drive home the attack. Considerable casualties had already been inflicted, when the weather, which had been threatening all day, broke completely, thus making it impossible to press home the attack on the only concentration of hostiles encountered in the open during the whole course of the operations.

27. *Extension of Areas.*—As a result of information received, warnings were issued to the following "friendly villages" which were giving sanctuary to hostiles and their flocks:—

Galli Punga, Pasti Khan, Julamdar Pari Khel, Jemadar Didai's village, Shinkai, Wazirgai. It was also definitely established that a large number of hostile Abdur Rahman Khels were sheltering with friendlies in the Sarela, and a warning was issued to this district on Apr. 12. A successful attack was carried out on this date. About this time information was received that hostile families were sheltering in the Barwand area, and the Abdur Rahman Khel were likely to move to the Baddar Algad *en route* to Afghanistan. Permission to extend the operations to these areas was therefore asked for: this was received on Apr. 20 for the Baddar area only.

28. *Further Negotiations.*—Representatives of the Abdur Rahman Khel hostiles arrived on Apr. 12 with definite peace proposals. These proposals were considered to be so important by the Resident, that bombing of the Spli Toi area was stopped from 14.00 hours on Apr. 13 until midnight on Apr. 14. The jirga duly appeared, but no useful results were obtained, and operations were resumed on Apr. 15, when 57¾ hours' flying were accomplished. During these raids chappar encampments in the Sarela were set on fire. Two more night raids were also sent out during the night.

29. *Settlement with Faridai and Maresai.*—About this time very conflicting reports were being received in regard to the intentions of the Faridai and Maresai, and the Political Authorities despatched an emissary to Ahmedwam to collect their jirga. A message was received in consequence on Apr. 15, that the jirga would appear under certain conditions which were at once refused. However, on the morning of the 18th the fine of 7 Government rifles was handed in, followed by the 3 Gomal rifles, whereupon operations ceased as far as these sections were concerned.

30. *Conclusion of Operations against Abdur Rahman Khel.*—Meanwhile a constant reconnaissance was maintained over the Baddar area in order to get information of any migration of hostile sections. Bombing of the Abdur Rahman Khel hostiles was continued, patrols being kept constantly over their area. On the 17th a further deputation of intermediaries for the hostiles arrived, but their proposals were not accepted. They returned on the night of Apr. 20, this time with definite promises of security, and they were accordingly granted 24 hours' respite. It was now discovered that the hostiles had actually left the Spli Toi for Baddar, but had been turned back by sections living *en route* who were afraid of being bombed. This forced them to return either to Spli Toi or Barwand, and it was reported that, if peace was not concluded, they intended to go direct to Afghanistan *via* Khaisora, to avoid further bombing. The three security rifles were not produced by the time allotted, and bombing was begun again, only to be suspended the same evening on the receipt of the rifles. After a preliminary meeting with hostiles and friendlies at Sarwekai on Apr. 23, a representative jirga was met on Tuesday, 28, at Jandola. After three days of strenuous discussion, due to the conflicting interests of hostiles and friendlies, terms were agreed to on Friday, May 1. The full fine of 16 rifles was accepted and guarantees for payment within a considerable time given.

31. The operations which had lasted 54 days were thus brought to an end. The Abdur Rahman Khel, the Guri Khel including the Biland Khel sub-section who have been stubborn in the past, the Faridai and Maresai have all accepted the terms originally laid down, except for one rifle which was remitted to the Biland Khel as a reward for their assistance in recovering Flg. Off. Dashwood's body. The moral effect of the bombing on tribesmen not included in the actual area of operations has also been considerable: various fines which were imposed before and during the present operations have been paid up, and the decisions of the Political Authorities have been carried out with exemplary promptitude. The following shows the nature of these results and, although they were not all due to the moral effect of air action, this undoubtedly influenced the decision of some of the tribes to settle their debts:—

(*a*) A section of the Malikdinai led by a famous badmash, Shamdai, who were the instigators of the raid on the Gomal Police Station, were so impressed by the bombing of their neighbours that they handed over the 13 rifles in their possession and paid the necessary fine. This result was a complete surprise and cleared up what might have proved a difficult situation.

(*b*) The Bahadur Khel tribe came in and paid up in full a long outstanding fine.

(*c*) The Shabi Khel tribe paid up a fine of over Rs. 7,000 for their share in the Marobi case last August.

COMMENTS.

32. *Damage Inflicted.*—It is difficult to obtain information as to the number of casualties inflicted on the enemy. The tribesman is reluctant to admit that the fighting strength of his tribe has been reduced by the killing of his young men, so his losses are usually concealed. It is not likely that the actual casualties were many, nor is it desirable that they should be provided that the enemy can be brought to terms without.

33. *Period of Operations Unfavourable.*—The final sanction of the Government of India was received on Feb. 25: this late date was disadvantageous from a purely military point of view for several reasons. By Mar. 9 the best of the cold weather was over, and flying had to be done when the increasing heat and seasonal storms added considerably to the strain on the pilots and ground personnel. Delay also rendered the blockade less unpleasant to the enemy than would have been the case in the more rigorous climatic conditions obtaining earlier in the year. As the passes were open an opportunity was afforded to those tribes who owned land in Afghanistan to slip away.

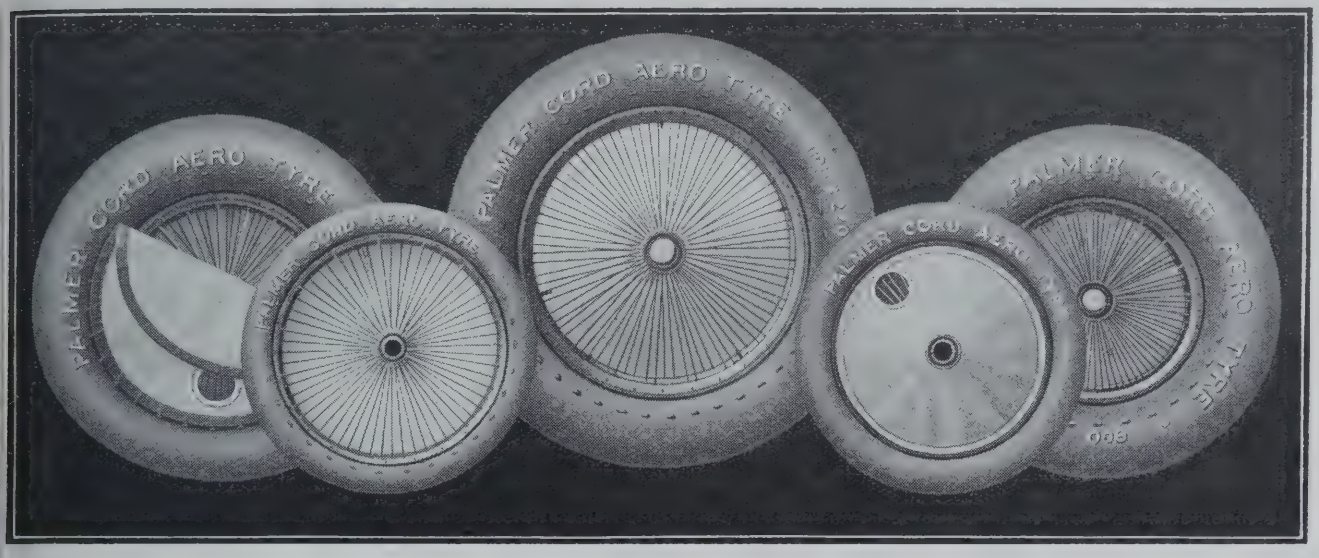
34. *Shortage of Aeroplanes and Pilots.*—At the time when the operations began the R.A.F. in India were approaching the end of an exceptionally busy training season which had made considerable demands on pilots and greater demands on the reserves of machines, engines, and technical stores This, combined with an under-estimate of the financial requirements of the R.A.F. in India for the year 1924-25, resulted in a shortage in the necessary number of serviceable aeroplanes and engines: on the eve of the operations this amounted, for the R.A.F. as a whole, to 27 aeroplanes and 40 engines, the former being due to the latter. In spite of this, some 2,000 hours' flying took place over the actual area of the operations during the 54 days they lasted, a result which reflects great credit on the officers and men of the squadrons engaged, and on those of the Aircraft Depot who worked overtime to maintain the squadrons in the Field. At the end of the operations the shortage had increased to 35 aeroplanes and 44 engines.

Another disadvantage lay in the fact that all the experienced pilots due for relief in the trooping season 1924-25, had left, and those who had replaced them were not available to take part as pilots in the operations, since they had not had time to complete their training under Indian conditions, which differ from those at Home on account of the low density of the air and the height of the landing grounds.

35. *Duration of the Operations.*—The operations themselves lasted for 54 days, and on 42 of the first 45 days, bombing was carried out on some part of the area proclaimed. This I believe to have been the longest continuous operations carried out by aircraft since the end of the Great War. Some 2,070 hours of war flying was done, and in addition some 650 hours' flying was carried out by the squadrons in connection with the operations, a total of over 2,700 hours. There was only one fatal accident which was probably due to the machine being shot down. This was the only occasion where a machine or a man fell into the hands of the enemy, but I regret to say the

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		m/m	m/m	m/m			m/m	m/m	m/m			m/m	m/m	m/m
375×55	168	111.12	25.4	Central	700×100	99	178.	38.89	132/46	1000×150	201	185.	60.32	125/60
300×60	16	111.12	25.4	Central	,,	112	150.	38.09	Central	,,	210	185.	60.32	Central
,,	17	72.39	12.7	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	,,	147	178.	55.	Central	,,	149	185.	55.	Central
,,	138	130.	38.09	Central	750×125	77	178.	44.45	132/46	,,	155	220.	66.67	Central
575×60	21	160.	28.	Central	,,	92	185.	55.	135/50	,,	166	185.	55.	125/60
,,	34	150.	31.75	104/46	,,	95	185.	55.	Central	900×230	107	185.	55.	Central
,,	111	150.	38.09	104/46	,,	96	178.	55.	132/46	,,	108	185.	55.	125/60
600×75	21	160.	28.	Central	,,	99	178.	38.89	132/46	,,	128	220.	66.67	Central
,,	34	150.	31.75	104/46	,,	112	150.	38.09	Central	,,	137	250.	80.	Central
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50	,,	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	,,	85	185.	55.	Central	1100×220	134	220.	66.67	Central
,,	79	178.	44.45	Central	,,	161*	185.	55.	135/50	,,	136	250.	80.	Central
,,	100	178.	38.09	132/46	,,	163*	185.	66.67	135/50					
,,	101	178.	31.75	132/46	,,	169†	185.	55.	135/50	1250×250	133	250.	80.	Central
700×100	77	178.	44.45	132/46	,,	211*	185.	60.32	135/50	,,	154	304.8	101.6	Central
,,	92	185.	55.	135/50	1000×150	131	220.	66.67	Central	1500×300	115	304.8	101.6	Central
,,	95	185.	55.	Central	,,	150	185.	55.	Central	,,	126	304.8	152.4	Central
,,	96	178.	55.	132/46	,,	167	185.	55.	125/60	1750×300	139	400.	152.4	Central
					,,	174	250.	80.	Central					

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accident caused the loss of the lives of two valuable pilots. However much the loss of two such good officers and gallant pilots as Flg. Offs. Dashwood and Hayter-Hames must be regretted, previous experience of frontier fighting shows that this is a small price to pay for enforcing our will on such hardy mountaineers as the tribes concerned, living in the difficult county of Waziristan. Nor do I believe that the cost would have been less had any other method of coercion been employed, indeed I think it must have been much more.

36. *Respites to the enemy.*—On several occasions during the operations bombing was stopped to enable jirgas to be assembled or property to be collected as security. In some of these instances the sections did not comply with the conditions on which the respite was given within the time laid down. The disadvantages of such respites are obvious; they enable the enemy to recover from the strain which the bombing attacks inflict, they facilitate the removal of valuable property, they give the tribesmen the impression that our resolution is weakening and provide opportunities for those who wish to do so, to slip away out of reach of further attacks. On more than one occasion the tribes came to terms without any preliminary respite or after bombing had been resumed on the expiration of a respite; for instance, between Apr. 15 and Apr. 18, the Faridai and Maresai came in without any cessation of operations against them, and the Abdur Rahman Khel surrendered the three rifles required as a guarantee of good faith on Apr. 21 after bombing had begun again against them. This shows that a respite is not always necessary, and whenever possible the operations should continue without check, until the terms laid down at the beginning have been complied with, or adequate security for the fulfilment of the conditions given.

37. *Hostiles and Friendlies.*—It is unnecessary to deal at length with the difficulties which are created for the Air Force by the division of the Mahsud tribes into hostile and so-called friendlies. All are agreed that such differentiation is undesirable, and that full tribal responsibility should be enforced. It is hoped that such a policy will prove practicable in future.

38. *Health.*—The health of the officers and men has been uniformly good, and the medical returns compare favourably with those for the corresponding period of last year in spite of an unusually hot April.

39. *General.*—This is the first occasion in India that the R.A.F. has been used independently of the Army for dealing with a situation which has got beyond the resources of the political officers. It is at present too early to judge how lasting will be the effect or how permanent will be the impression of this display of air power on the stubborn tribesmen of the North-West Frontier, but it is claimed that the operations prove that in the R.A.F. the Government of India have a weapon which is more economical in men and money and more merciful in its action than other forms of armed force for dealing with the majority of problems which arise beyond the administrative frontier. That they have not been without effect on sections of the Mahsuds who were not included in the area of operations is shown by a number of settlements which have been effected during the progress of the operations, notably the case of the surrender of the rifles looted from the Gomal Police Post.

40. *Recommendations.*—I wish to bring to notice the services of Wing Cdr. R. C. M. Pink, C.B.E., who was in command in Waziristan. He has shown a fine example to his command in taking part personally in a number of raids. He has shown great resource, determination and energy, and it is due to the same qualities that Nos. 27 and 60 Squadrons, which were under his orders for 14 months previous to the operations, were fit to perform the arduous work required of them. I have forwarded separately the names of the officers and airmen which I wish especially to bring to notice. In doing so, I wish to place on record my appreciation of the devotion to duty, keenness and resource shown by all ranks and the courage and determination of the crews of aircraft to whose efforts the success of the operations is entirely due. I have forwarded under separate cover my recommendations as to the concessions to be granted to the personnel serving in Waziristan during the dates covered by this dispatch.

41. In conclusion I wish to thank the members of the Military and Political services for their whole-hearted assistance, and loyal co-operation during the operations, and the generous interest they took in their progress.

THE INSTALLATION OF THE AIR-COOLED RADIAL.

The paper on this subject by Mr. A. H. R. Fedden, read before the Royal Aeronautical Society on Nov. 26, was largely a plea for greater attention to the problems of installing the air-cooled radial in aircraft, and for a larger measure of co-operation as between the aeroplane designer and the engine manufacturer. Mr. Fedden pointed out that the water-cooled engine of accepted type had had vastly more time and brains concentrated upon its development.

In regard to mounting, a certain amount of variation in design was inevitable as the same engine might be mounted on a single-seat fighter of the smallest size, or on a large-bodied commercial aeroplane. Nevertheless there were much wider variations between mountings used on precisely similar types than could be justified, and by partial standardisation and more careful consideration of the design, the advantages of weight saving with the radial could be further increased.

Cowling of the normal type required very careful design. On some earlier installations the cowling was unsatisfactory and flimsy. It was by no means a simple job to attain stiffness and strength in sheet metal work, and too often cowling was left to be made up on the job. On a first type this might be excusable, but for reproduction, great care in design was necessary. It could be said that there was no need to make the cowling between the airscrew boss and the cylinder readily detachable as no part of the engine within it required frequent attention, and very stiff panels could be made up with press-tools and the minimum of hand work. The case was different for the rear panels, which must be quickly detachable. There was scope for considerable ingenuity in respect of a safety catch for such panels.

Spinners, from the engine-maker's point of view, were a doubtful quantity. The usual metal type were very difficult to make, and unreliable. If run out of balance they may set up serious stresses in the engine.

A satisfactory exhaust system had been a stumbling block in the past. On certain types of machines however it was a necessity, and it was surprising how many difficulties had been encountered in producing such a system. The ring or segment type was undoubtedly the best with individual cylinders discharging direct into an annular collector. Close co-operation between the engine designer and the aeroplane designer over this detail was necessary to avoid expensive alterations to tools, etc., caused by requirements for cowling attachments and so forth. Help from the metallurgist, to produce a stainless material for exhaust pipes, was necessary.

The lubrication system of the radial required care. In all modern engines of this type the maximum oil circulation possible was required to cool the bearings, and as the crankcase cooling surface is small, oil-coolers are necessary. Very careful design and manufacture are required if these are to be satisfactory. The Bristol Co. had developed and standardised three sizes of oil-cooler for the Jupiter engine, suitable for fast, moderate-speed, and slow machines. These worked satisfactorily, but there was still more work to be done. Oil-cooling without the weight and drag of the present coolers could pretty certainly be attained by one or a combination of the following schemes :—(1) Combining the cooler with the main tank, (2) making the cooler part of the body fairing, and (3) using the hot oil to heat the incoming gases. Some of these schemes were already under investigation.

Air-cooled radials were somewhat more susceptible to change in atmospheric temperature, as they had not the radiator shutter or thermostat temperature control used on water-cooled types. This led to carburation difficulties. The Bristol Jupiter engine had a combination of exhaust heating of the carburettor elbow, and of warm air and oil heating to the air intake. In warm climates, and at low altitudes, very little heating is necessary, and unnecessary heating should be avoided as it reduces volumetric efficiency and output.

A jet type of altitude control is considered preferable to the vacuum type of control, as it is more positive and progressive. It has the further advantage that it is not so liable to derangement by snow in the air intake.

Great improvement had been made during the past few years in the power weight ratio of the air-cooled radial, and without undue optimism Mr. Fedden thought that this progress, accompanied by a reduction in frontal area, would continue. A weight of 1 lb. per h.p. was possible.

Sir Hugh Trenchard had recently pointed out that in the next war the wastage of aeroplanes would be so rapid that the nation which most promptly re-equipped itself would probably prove the victor. If a large output of 400/450 h.p. engines were suddenly required the air-cooled radial seemed to be the only possible answer.

It had recently been suggested to him that, apart from the actual large frontal area, the radial type gave a badly-shaped nose. If that were the case he saw no reason why co-operation between engine and aeroplane designer should not overcome this difficulty. He saw no reason why the radial should not be entirely cowled, and by lengthening the crankshaft and nose of the crankcase a fair nose could be attained.

BRISTOL ENGINES AND GAS-STARTERS IN FRANCE.

A Bleriot Spad 56, fitted with a 400 h.p. Gnôme-Rhône Jupiter engine was lent recently to the Compagnie Générale de Navigation Aérienne (C.I.D.N.A.) by the Service Technique de l'Aeronautique, for test on the air lines of that company. The machine was tested out on the Paris-Strasbourg section of that company's Paris-Prague-Warsaw service, and made twenty-four trips, involving a total distance of 10,000 kms.

As the result of this test the company reports that the Spad 56 possesses excellent aerodynamic qualities, rapid take-off, excellent landing abilities, large commercial capacity (650 kgs.), and high maximum speed (200 km.p.h.).

In addition the type of engine used and its method of installation, allow of a considerable reduction in the number of overhauls as well as in time required for repairs.

The Gnôme-Rhône Co., who, in addition to owning the licence for constructing Bristol air-cooled engines also build the Bristol gas-starter in France, lent one of these gas-starters to the Compagnie Internationale de Navigation Aérienne for test on the Lorraine-Dietrich and Salmson engines.

These tests after certain minor alterations and adjustments were entirely satisfactory. With the Lorraine-Dietrich engine 98 per cent. efficiency was obtained, and with the Salmson engine the efficiency was 100 per cent.

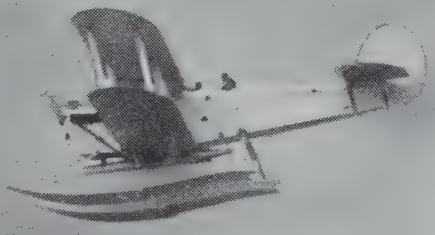
In consequence the Gnôme-Rhône-Bristol gas-starter has been adopted as standard equipment by the C.I.D.N.A.

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THE VICKERS VANGUARD.



THE VICKERS VANGUARD.—A twenty-passenger machine, fitted with Rolls-Royce Condor engines of 650 h.p. each, which is now being operated by Imperial Airways.

The new Vickers Vanguard which was recently handed over by the Air Ministry's testing departments to Imperial Airways is essentially a modern and improved version of the Commercial Vimy type which has so excellent a record of service on the British Air Lines behind it.

It is a large twin-engined biplane fitted with two Rolls-Royce Condor engines of 650 h.p. each and giving a paying load capacity of 3,800 lbs.—equivalent to 25 passengers of 10 st. 10 lb. apiece—at a top speed of 115 m.p.h.

It is marked by the possession of a fuselage of very large oval cross-section, built on wooden formers and entirely wooden-skinned, similar except in regard to size to those of the original Commercial Vimy, the Vickers Vulcan and the Vickers Vernon ambulance which has been supplied to the R.A.F.

Owing to the dirty and damaged condition of the interior when the machine was delivered to Croydon after the R.A.F. tests, it was found necessary to strip the cabin of all equipment and thoroughly to clean and overhaul the machine before putting it into service, and it is therefore difficult to give any account of the details of passenger accommodation and so forth as originally provided by the builders. It can be said that the cabin is extremely roomy and should not be overcrowded by a full load consisting entirely of passengers. Owing to the form of construction this cabin should prove to be exceptionally quiet and draught proof, and as there is no engine in the fuselage there can be no oil, petrol or exhaust gas fumes entering it.

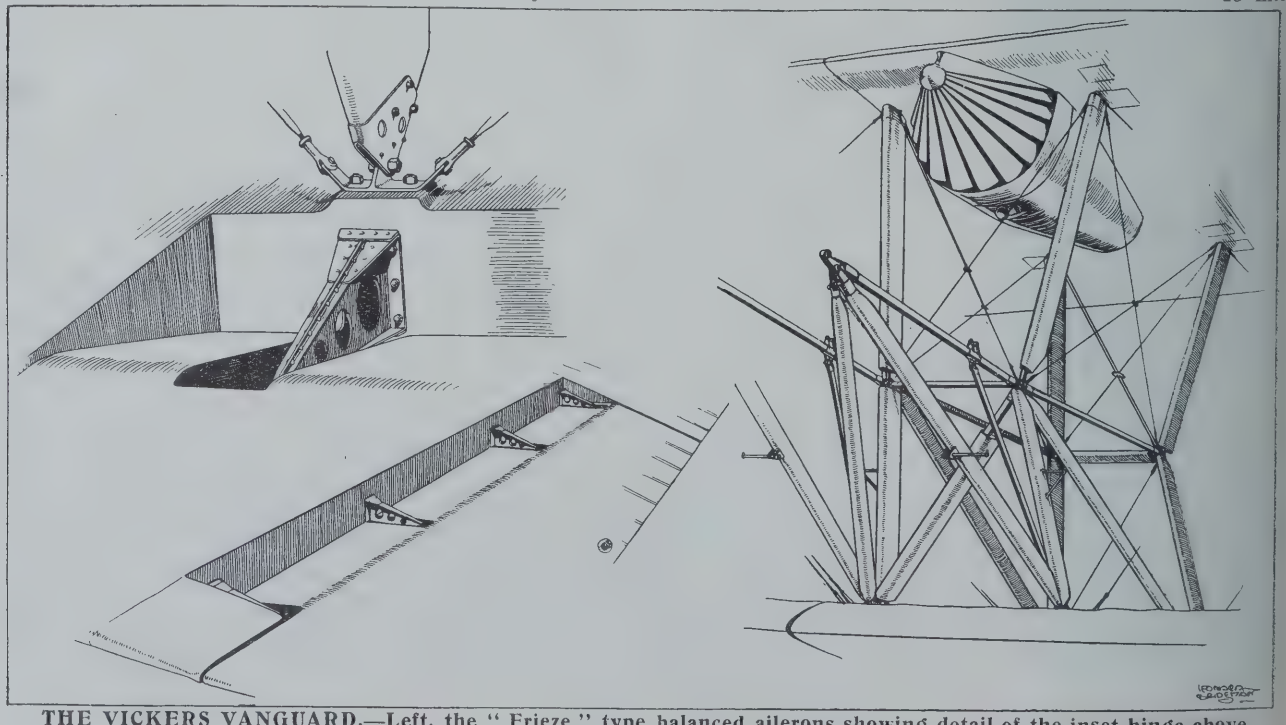
Pilot's and mechanics' cockpits are arranged side by side in the nose of the fuselage, where, owing to the shape of the body they have as nearly perfect a view for both navigation and landing purposes as is possible. This is a point of very great importance when operation in conditions of poor visibility has to be considered, and it is extremely difficult to provide the view that is desirable in any machine with an engine in the nose of the body.

Another feature of the Vanguard which is distinctive of Vickers aircraft of this general type is the biplane tail with twin rudders and fins, these latter arranged to come within the slipstream of the airscrews—an arrangement making for ease of control when one engine is out of action.

A very considerable amount of flying has been carried out on the Vanguard in the course of tests, and a very general agreement is expressed by all pilots who have flown it that the machine is extremely pleasant and easy to fly. This again is a factor of very great importance. Whether the work of piloting commercial aeroplanes ever does or does not become the routine chauffeuring that some authorities hold to be its sole future, at present piloting in bad conditions is a harassing and responsible work, and the less unnecessary fatigue and discomfort the pilot has to endure the better he should be able to discharge his functions. A machine that the pilots like to fly will get through where a more reliable but less pleasant machine will not start—and therefore pleasant flying qualities are a factor in regularity of service.

SPECIFICATION.

Span ... 87 ft. 9 in. (26.8 m.)	Engines 2 Rolls-Royce Condor, 650 h.p. each.
Length 60 ft. 3 in. (18.4 m.)	Wing loading 8.5 lbs./sq. ft. (40.7 kg./m.²)
Height 17 ft. 3 in. (5.27 m.)	Power loading 13.3 lbs. (6 kg.) per h.p.
Wing area ... 2,182 sq. ft. (204 sq. m.)	Max. speed 112 m.p.h. (181 km.h.)
Weight empty ... 12,040 lbs. (5,450 kg.)	Min. speed 49 m.p.h. (79 km.h.)
Weight loaded ... 18,500 lbs. (8,300 kg.)	Climb to 5,000 ft. (1,525 m.) 10 mins.
Pay load 3,800 lbs. (1,725 kg.)	

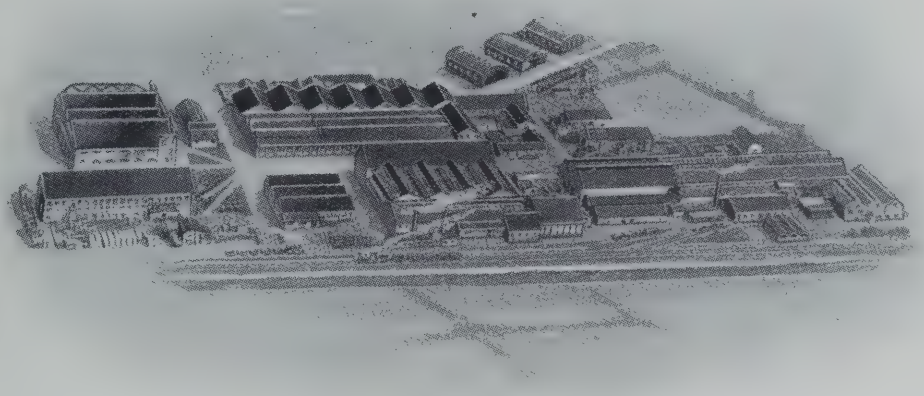


THE VICKERS VANGUARD.—Left, the " Frieze " type balanced ailerons showing detail of the inset hinge above and the aileron as a whole below. Right, one engine mounting. The Rolls-Royce Condor is supported on two ball joints at the front end of this mount and by spring links from the lugs at the after end, thus giving practically a three-point suspension and relieving the crankcase of torsional stresses.

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THE LIGHT AEROPLANE CLUBS.

THE LONDON AEROPLANE CLUB.

Flying during the week was restricted to four days and the total flying time was 24 hours 35 minutes. Owing to the illness of Mr. G. T. Witcombe practically all the flying instruction was given by Mr. F. G. M. Sparks.

The following members had flying instruction:—J. S. M. Michie, Miss Salusbury, A. Southgate, G. N. Howe, J. Barros, Mrs. Atkey, D. Kittell, R. Malcolm, R. V. Banks, N. Jones, W. Hay, A. R. Ogston, C. E. B., Moss, N. J. Hulbert, Miss Allen, Miss Taggart, A. Kennedy, G. Vlasto, R.C. Presland, Major Beaumont, G. W. Quirk, Col. Turner, D. P. H. Essler, O. J. Tapper, S. C. Richards, E. S. Brough, W. E. P. Johnson, V. H. Doree, C. E. Murrell, B. Tucker, G. H. Saffrey.

Solo flying was carried out by Sq. Ldr. M. E. A. Wright (30 minutes), P. G. Lucas (1 hour), Mrs. Eliott-Lynn (2 hours), G. H. Craig (1 hour), G. N. Warwick (1 hour), W. Roche Kelly (30 minutes), N. J. Hulbert (30 minutes), A. Kennedy (30 minutes).

During the Christmas Holiday flying will be suspended from the Wednesday, Dec. 23, till Thursday, Dec. 29.

THE LANCASHIRE AERO CLUB.

The weather has been bad all through the week, fog, wind and further fog. Flying took place only on Wednesday, Friday, Saturday and Sunday. Hours flown,—3 hrs. 10 mins., dual 30 mins., solo tests occupied 35 mins. Total hours flown, 4 hrs. 15 mins.

The following had instruction from Mr. Cantrill: A. Goodyear 25 mins., C. A. S. Parker 70 mins., A. Colley 10 mins. Mr. Scholes gave dual instruction to: S. Crabtree 20 mins., H. Stern 50 mins., B. Tummers 15 mins. Solo flights by M. Lacayo 10 mins., A. Goodfellow 20 mins.

There will be a lecture at the Club's headquarters in Manchester on Dec. 8 at 7.30 p.m. Mr. Cantrill will speak on "Practical Flying," Mr. Scholes on "Navigation," and Mr. Leeming on "'A' Licenses." Mr. Cantrill and Mr. Scholes are the Club instructors, Mr. Leeming is the official observer for the Royal Aero Club for Pilots' certificates. Members are invited to bring friends.

An unfavourable impression may be created by the shorter hours which are flown by this Club compared with London and Newcastle. There are two reasons, first the Aerodrome is 16 miles from Manchester and members find that these short afternoons they have to leave Manchester at lunch time to get any flying before dark. The second reason is that this Club, unlike the others, has not a permanent instructor always in attendance and members cannot drop down on chance but have to make arrangements and find out if an instructor will be there.

The Club's two unpaid instructors are doing excellent work and are carrying the Club on until the Spring, when it is intended to get a permanent paid instructor. The Committee feel that if they can save money until Spring and the light evenings come it will give the Finance Committee some slight chance of making ends meet. In the Spring with five machines it is hoped to put in a lot of flying and to increase the membership. In the meantime the Club is proceeding slowly, and keeping an eye on the overhead charges. Also Manchester is noted for its exceptionally bad weather—rain and fog.

THE NEWCASTLE-UPON-TYNE AERO CLUB.

Report for week ending Nov. 29, 1925. Total times flown—"LX," 4 hrs. 12 mins., "LY," 7 hrs. 18 mins. Total 11½ hrs.

The following members have had instruction with Major Packman during the week:—Mr. A. E. George (50 mins.), W. M. MacKay (32 mins.), J. C. Lawrence (15 mins.), G. H. Twine (30 mins.), R. N. Thompson (65 mins.), A. Bell (15 mins.), L. de Loriol (2 hrs.).

On Thursday, Mr. Heppell flew solo for 22 mins.

Mr. W. M. MacKay made his first solo flight on Monday, 23rd, for 15 mins., also 22 mins. on Thursday.

Mr. Stobie carried out the tests for his "A" Licence on Monday, flying for 2 hrs. and 13 mins. He stated that it was "mighty cold at 6,000," and so it must have been. On Tuesday he made some forced landings, under Major Packman's instruction, in a small field.

Major Packman carried the following as passengers during the week:—Miss Pringle, Miss Bruce and Miss Oxley.

Mr. Baxter Ellis flew for 45 minutes, on Thursday, with Mrs. Ellis and Mrs. Waller as passengers (2 flights). Mr. Ellis has also been taking cinema photographs both from the air and of a machine in flight piloted by Major Packman.

No flying took place on Wednesday owing to a severe snow storm, since when, it has been necessary to "dig the machines out of the hangar," as it is described by Major Packman. There have been drifts of about 7 feet in front of the hangar on some days, and on Thursday, Friday, Saturday and Sunday flying has only been possible during short intervals between falls of snow. Not a minute has been lost throughout the week, however.

Mr. Heppell took photographs of some of the flying, as well as Mr. Ellis's cinema photographs, and it is hoped that if they are satisfactory some may be published.

Major Packman is taking instruction in the local dialect. This course has been found necessary, as in dual flying the telephones do not appear able to interpret the speech which passes along the tubes from and to pilot and "Tyneside" pupils. It is understood that he is making satisfactory progress under the tuition of Messrs. J. Bell and Stobie.

The following took place between Major Packman and a prospective candidate for a "B" Licence:—(Q.) "What is 'a bearing'?" (A.) "A place where they keep bears." This shows the necessity of Major Packman's learning the language.

In response to requests for photographs for the decoration of the Club House, some excellent pictures have been received from Messrs. K.L.M., and a number of postcards from Imperial Airways Ltd., for which the Club is very grateful.

THE MIDLAND AERO CLUB.

The following letter from a member of the Midland Aero Club seems to indicate that all is not well with that association.

Sir,—As a member of the Midland Aero Club I should like to make one or two observations regarding Club progress, or lack of progress, so far.

The lack of interest here in Birmingham is very regrettable but I am afraid is largely due to lack of enterprise on the part of those in charge of the Club's affairs. There is almost a total absence of publicity and it is quite a rare event to see any propaganda in the local press or even any mention that such a thing as The Midland Aero Club does really exist.

If the Club membership is what it is reported to be surely it is most extraordinary that hardly anyone puts in an appearance at the aerodrome. I have been there every Sunday since the Club commenced operations and on no single occasion has there been more than six members there at any one time.

Those who do go are not made particularly welcome, unless they happen to be having a course.

However, out of justice to Mr. MacDonough, I would like to say that flying is certainly not moribund, as your note in last week's AEROPLANE states, although, as you quite justly remark, absence of Club reports leads to that presumption. Several members are having a course of instruction and one at least (G. Savage) has done his first solo. There is a fair amount of flying and the "Moth-Cirrus" combination is decidedly giving considerable satisfaction.

In conclusion I would make the following impressions of things as they appear to me:—

(1) That there is need for co-operation with the Press in supplying intelligent information and propaganda.

(2) That a Club Room should be provided in the city, or failing that at least a room say once a week.

(3) That the ground course is inadequate, in fact practically non-existent.

(4) That all should be encouraged to go to the aerodrome whether flying members or not. If we are to play any part in creating a greater interest in aviation, we should not lock the gate, as is being done, and keep the onlookers out. At least an apology for an enclosure should be made.

(5) That a social spirit is very necessary in any Club. The absence of this is a cause for real regret.

(6) To sum up, enterprise is necessary, publicity is necessary, and no effort should be spared in making the whole thing popular. After all, it is largely due to Sir Samuel Hoare that these Clubs ever started. May they fulfil the purpose our Air Minister expects—"Interest in the Air."

I am sorry to trouble you with this somewhat lengthy letter. I have written it purely in the hope that you may find room in THE AEROPLANE for a further note on the matter.

[Here, one believes, is complete justification for one's remark that aviation is apparently moribund in Birmingham. The word "moribund" means "ready to die" or "in process of dying" but not "quite dead." And while there is life there is hope. If the Committee of the Midland Aero Club will set the right way to work they can make the Club just as much a real live concern as are the Lancashire and Newcastle Clubs, and can fulfil their function as apostles of aviation.—C. G. G.]

LORDLY DIMENSIONS.

In the issue of THE AEROPLANE for Nov. 18, on p. 598, under the heading "The Two-Seater Light Aeroplane Competition, 1926," it is stated that "in the case of a side-by-side machine the cockpit width must not be less than 44 ft. to be measured at the seat level." This should of course have read "44 inches."

The machines are not being produced for personal instruction by the Officer Commanding a Bombing Squadron, as might have been deduced from the original paragraph.

BERKSHIRE RECORDS.

There is considerable satisfaction in recording the fact that outside the manufacture of aeroplanes and engines there is a living to be made, if not exactly a fortune, in other branches of aviation. One assumes such to be a fact because the Berkshire Aviation Tours, which is the property of Mr. F. J. V. Holmes, have given up their ancestral offices and works at East Hanney, near Wantage, and have taken over the old R.A.F. Aerodrome at Witney, where the blankets come from.

Quite a large staff is now employed there on reconditioning not only the firm's own joy-ride machines and engines but on any other aircraft committed to the care and attention of the Berkshire people. At the present moment the Berkshire Aviation Tours have five Avros in commission and one D.H.53, with which they intend to do exhibition flying next year, with the idea of popularising light aeroplanes among the masses.

Mr. Holmes' staff at present consists of four pilots, Messrs. Parkinson, Kent, Beck and Leleu. He also has five fully-licensed ground engineers, two fitters, two riggers, four labourers, two advance agents, one apprentice and two boys. Of these, seven are constantly employed at Witney.

How well the firm is doing, even at this time of the year, may be judged from the fact that at Nuneaton, a by no means attractive colliery town near Coventry, the firm took up 676 passengers in ten flying days in spite of one Sunday when the pilots could only give exhibitions because of the wind.

Undoubtedly the firm is doing much to promote "air-mindedness" among the people of this country and one is glad to see that what the Americans call "gypsy flying" does at any rate bring some reward.

Incidentally Mr. J. D. Parkinson, the firm's senior pilot, must by now hold the World's Passenger-Carrying Record formerly held by Mr. Alan Cobham and later by Mr. O. P. Jones. Since joining the Berkshire Aviation Tours Mr. Parkinson has done 2,300 hours' flying and has carried 27,000 passengers. And including the passengers which he had carried before joining Mr. Holmes he has carried in all 34,000 passengers since Civil Flying began in 1919.

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 1; Tuesday, 5; Wednesday, 2; Thursday, 11; Friday, 5; Saturday, 9; Sunday, 3.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 25, passengers 62, freight 8 tons.

AIR UNION:
Paris—London: Machines 5, passengers 12, freight 8½ tons.

K.L.M.:
Amsterdam—Rotterdam—London: Machines 6, passengers 5, freight 2 tons.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES: Nil.

Total number of trips by British Machines: 25, carrying 62 passengers. Foreign machines: 11, carrying 17 passengers.

Comparative Figures:

For week ending Nov. 29:
Machines, 36; Passengers, 79; Crews, 41, Total personnel, 120.

Corresponding week, 1924:
Machines, 75; Passengers, 213; Crews, 98; Total personnel, 311.

Corresponding week, 1923:
Machines, 15; Passengers, 24; Crews, 23; Total personnel, 47.

Corresponding week, 1922:
Machines, 49; Passengers, 120; Crews, 94; Total personnel, 214.

Corresponding week, 1921:
Machines, 19; Passengers, 13; Crews, 30; Total personnel, 43.

Corresponding week, 1920:
Machines, 39; Passengers, 58; Crews, 45; Total personnel, 103.

Croydon Notes.

Croydon aerodrome must have been one of the coldest places in the world during the past week. With icy blasts and snow it would have made a veritable paradise for polar explorers. Why people like Mr. Binney, Mr. Algarsson, Flt. Lt. Carr and others ever wanted to go to the polar regions at vast expense, just to get cold, when they could reach a polar home from home at Croydon at an inclusive fare of one-and-nine-return from London, one does not know. As Mr. Punch once said, "For those that like that sort of thing this is just the sort of thing they will like."

Mr. Biddlecombe is still ascending in his balloon to look at the Neon light. He is waiting patiently for a fog, which when not wanted is so ever present at this time of the year. As one is wanted however Mr. Biddlecombe is unable to find it.

If Mr. Hay, the Director of Civil (and uncivil) Weather at Croydon, refuses to deliver the goods, one would suggest to Mr. Biddlecombe that he should approach the Air Ministry's Secrecy department or the Schneider Committee. Either or both conjointly, severally and separately, are past masters in the art of creating fogs.

Mr. Wolley Dod is now back from his honeymoon and signalised his return to the Air route by flying a D.H.34 to Amsterdam and back on Friday.

For the benefit of those at Croydon who do not read all of THE AEROPLANE one would point out that in an announcement made on another page, details are given about the next Royal Aero Club House Dinner, on Dec. 16, at which Sir Sefton Brancker will open a discussion on civil aviation. Those interested in civil aviation who are members of the Club should apply at once for tickets, which cost only 5s. From experience of the first dinner one can recommend every one who can do so to attend.

All sorts of rumours as to long distance flights with and in clouds are emanating from the A.D.C. Aircraft Co. Ltd. factory and the "Nine that leaps to the Nimbus" is said to be not unconnected with the adventure. All one can manage to find out from Major Stewart is that the date should be June, as that is the best month, and that the pilot will tie a string around his finger just to remember to come back again.—G. D

An Imperial Airways Move.

It is understood that Mr. J. Silverwood Cope, who was seconded for duty with Imperial Airways Ltd. from the Dunlop Company and represented Imperial Airways' interest at the Stockholm Conference, is returning to duty with the Dunlop Company. His duties with Imperial Airways are to be taken over by Lieut.-Col. H. Burchall.

Quite recently Colonel Burchall has been occupied along with Colonel Minchin in surveying the air route from Cairo to Karachi. Prior to that he had the organising of the aeronautical exhibit at Wembley. In both these activities he has shown organising ability and initiative and a faculty for producing much with very little material. That being so, he should prove a valuable addition to the staff of Imperial Airways. One can congratulate heartily both parties to the arrangement.—C. G. G.

The Flight towards the Cape.

Mr. Alan J. Cobham is still detained at Athens "adjusting his engine." According to a dispatch sent by him to *The Daily Mail* last Tuesday so many invitations have been sent to him to attend banquets, and as queues of Greek telegraph boys (presumably τελεγραφοι νεαναι) have been bringing wires to ask him to survey the back gardens of native chiefs, his flight will be delayed somewhat.

Rumour has been strong in this country however that his delay has been due to trouble in his engine. One is inclined to think that if this is the case the firm concerned should issue a definite statement. The "Mr. A." case is a good example of the evils of suppression. In that case the misdeeds of Mr. A. were settled upon almost every Eastern potentate.

In this case the causes of Mr. Cobham's trouble have been attributed to every portion of the machine and its accessories. Candour is always best in these cases and pays in the long run, as rumour always makes out that the defects are worse than they are in fact.—G. D.

The Royal Aeronautical Society.

On Jan. 12, 1926, the Royal Aeronautical Society will celebrate the 60th anniversary of its foundation. It has been decided to mark the occasion by holding a conversazione at the South Kensington Museum, and to make that function a starting point in an intensive campaign to increase the Society's membership and strengthen its financial position.

AIR AFFAIRS IN PARLIAMENT.

BOSCOMBE DOWN.

In the House of Commons on Nov. 23, in reply to a question by SIR A. HOLBROOK, the SECRETARY OF STATE FOR AIR made the following statement:—

The Old Sarum Aerodrome has been continuously occupied by the Air Force since the end of the War, and I assume that my hon. and gallant Friend is referring to the neighbouring aerodrome at Boscombe Down. The facts in regard to Boscombe Down are these: The land was occupied by the Department before relinquishment at a compensatory rental of £100 16s. 5d. per annum, assessed on an actual loss basis and not in relation to freehold value. When the aerodrome was given up after the War, the buildings were sold to the owners of the land for £1,100, the owners waiving the very considerable claim in respect of re-instatement which otherwise they would have had. When last year it became necessary, as a result of the new Air Force programme, to re-acquire the aerodrome, the land (283 acres) and the buildings were purchased for £15,000, which included claims in respect of severance, tenant right and injurious affection to the farm generally.

[This reply seems to dispose of the mare's nest recently discovered by a member of the Council of the Drapers' Chamber of Trade and reported at length in the daily press under the heading of "Air Ministry Extravagance."]

PARACHUTES.

In the House of Commons on Nov. 23, in reply to SIR F. SYKES, the SECRETARY OF STATE FOR AIR said that about one-third of the initial order for American parachutes and all future supplies were to be manufactured in this country and he expected that delivery from this source would begin in July.

In reply to another question by Sir F. Sykes on the following day, Sir Samuel Hoare said that the parachutes on order for the R.A.F. were a proprietary article and the contract was not placed as the result of competitive tendering. In the case of competitive tenders being invited for the supply of proprietary articles it was usual for the Department to assume responsibility for infringement of patent rights.

THOSE CURTISS ENGINES.

In the House of Commons on Nov. 25, in reply to a question by COLONEL WOODCOCK, the SECRETARY OF STATE FOR AIR circulated the following report:—

In answer to the first part of the question, the materials and manufacture of the engines referred to are being inspected during production by the Inspection Department of the United States Government. The engines will further be subjected by the Air Ministry to the same bench tests and internal examination as those applied to all British engines.

As regards the second part of the question, I am not aware of any specific recommendation of the Fire Prevention Sub-Committee in regard to the position of the carburettors, but their general recommendations make it desirable that carburettors should be disposed, where practicable, in a different manner to that adopted in the Curtiss engine.

I wish to remind my hon. and gallant Friend that a recommendation from the Fire Prevention Sub-Committee is only one of numerous

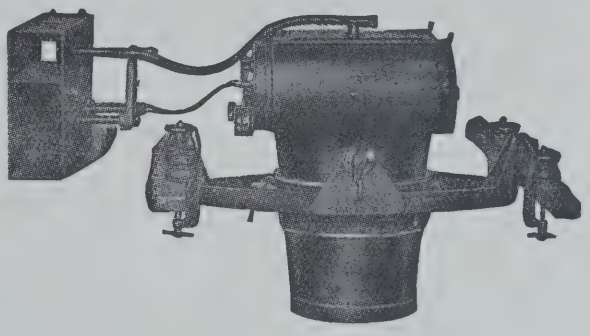
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considerations which the Air Ministry must bear in mind in determining Service requirements and it may be added that the position of the carburettors, in the Curtiss engine, is similar to that of the carburettors in over 2,000 engines in regular use in the Royal Air Force at the present time.

As regards the last part of the question, an engine of the type in question has been tested at the Royal Aircraft Establishment, Farnborough, and failed in a duration test after completing 78 hours instead of the full 100 hours laid down for the test. As a result of this test certain modifications have been incorporated in the 30 engines now on order.

PARACHUTES.

In the House of Commons on Nov. 25, Sir F. Sykes asked the Secretary of State for Air whether he is aware that the American Irving-type parachute under order by the Air Ministry omits certain safety devices, but is claimed in other respects to infringe British patents covering a type at one time experimented with in this country; whether he has received information that this last-mentioned type is now regarded by the inventor as obsolete and as less efficient than subsequent British designs; whether the Air Ministry have received and considered any comparative statements by British designers of the merits of the Irving and British types; whether they are completely satisfied that no type of parachute exists affording greater safety than that of the Irving type in design, workmanship, and/or operation; and whether he is prepared to make a statement in regard to the technical aspects of this order?

Sir S. Hoare: As regards the first part of the question, the contention of a British inventor that the Irving parachute infringes his patent, is at present under investigation. As regards the second part, I am aware that this inventor has designed a parachute which he considers to be an improvement upon the type submitted by him some years ago, but as he has not yet afforded the Air Ministry a reasonable opportunity of testing his latest type, I am unable to institute any comparison between its merits and those of the Irving.

As regards the third and fourth parts, I am not prepared to assert that further research and experiment will not result in parachutes giving even greater immunity from risk than does the Irving; but in view of the urgent necessity of equipping the R.A.F. with a reliable parachute I decided, for the reasons stated by me in the House on Feb. 26 and June 24 last, not to await the progress of experiments, but to adopt a device which had already reached the stage of successful production and whose serviceability had been demonstrated beyond question over a long period of practical air experience. I do not think it practicable to make a technical statement within the limits of a reply to a question.

MORTGAGES AND CHARGES.

Metal Propellers Ltd.—Mortgage dated Nov. 9, 1925, to secure £9,000, charged on various freehold houses in Harcourt Road, Thornton Heath. Holders: Commercial Union Assurance Co. Ltd.

Metal Propellers Ltd.—Mortgage dated Nov. 9, to secure £1,800, charged on certain properties in Thornton Heath (subject to first mortgage dated November, 1925). Holders: A. H. Allen, "Nortons," Lingfield, Surrey; and R. J. Mauser, 190, Lower Addiscombe Road, Croydon.

PERSONAL NOTICES.

Deaths.

BURTON.—On Nov. 20, at Halton Camp, as the result of the premature explosion while engaged in blasting the root of a tree, AC. John Burton, R.A.F.

EARLY.—On Nov. 26, at Upavon, Wiltshire, as the result of a flying accident, William John Reginald Early, Plt. Off., R.A.F.

Mr. Early joined the R.A.F. in March, 1925, with a short service commission. He was posted to No. 12 (Bombing) Sqdn. for a course of instruction and then to No. 3 Sqdn.

MOORE.—On Nov. 23, at Hinaidi, Iraq, as the result of a flying accident, Joseph Albert Moore, Flg. Off., No. 30 Sqdn., R.A.F.

Mr. Moore was the only son of Mr. and Mrs. Moore, of Romsdal, Chorlton-cum-Hardy. He was granted a short service commission in the R.A.F. with the rank of Flg. Off. on May 25, 1925, and after a short course of instruction with No. 24 Sqdn., Kenley, was posted in September to No. 20 (Bombing) Sqdn.

RICKABY.—On Nov. 23, at Hinaidi, Iraq, as the result of a flying accident, No. 354797 AC.1. Arthur Algernon Rickaby, R.A.F.

SLATER.—On Nov. 26, at Upavon, Wiltshire, as the result of a flying accident, Flt. Lt. James Anderson Slater, M.C., D.F.C., No. 3 Sqdn., R.A.F.

Flt. Lt. Slater served with distinction in the R.F.C. during the War, 1914-18, and was awarded the M.C. and the D.F.C. In 1920 he was serving at Manston and was posted in 1921 to No. 5 F.T.S. at Shotwick. In March, 1922, he went to Abu Sueir and in September, 1923, to No. 70 Sqdn., at Hinaidi. In 1924 he served for six months with No. 1 Sqdn. at Hinaidi and was transferred to the Home Establishment in September of that year. He was appointed to No. 3 Sqdn. last April.

SOUTH.—On Nov. 23, William Donovan South, late Capt., R.A.F., only son of W. H. South, of Gorway Road, Walsall.

Forthcoming Marriages.

GRACE—MACKAY.—The marriage between Flg. Off. R. T. F. Grace, M.B., R.A.F., and Miss Lucy Mackay will take place at St. Andrew's Church, Frognal Lane, N.W., on Dec. 15, at 2.15 p.m. There will be no reception, but all friends are welcome at the church.

MACKAY—COMPER.—The engagement is announced between Flt. Lt. E. P. Mackay, No. 8 (B) Sqdn., R.A.F., son of the late A. J. Mackay and of Mrs. Mackay, of 32, York Road, Birkdale, and Ursula, daughter of Mr. and Mrs. J. N. Comper, of 67, Beulah Hill, Norwood, S.E.

Births.

GILES.—On Nov. 20, at Croydon, to Doris May (*née* Barber), the wife of Lt. Robert C. Giles, Royal Marines, attached R.A.F.—a son.

PULFORD.—On Nov. 25, at 48, Lexham Gardens, W.8, to Mindra, wife of Wing Cdr. Conway Pulford, R.A.F.—a daughter.

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"BETWEEN THE WAVE-RIDGE AND THE STRAND."—(*Swinburne*).



"THE SEA GIVES HER SHELLS TO THE SHINGLE" (Also Swinburne):—The Marchese di Pinedo's flying-boat being re-victualled with Shell Spirit off the beach at Karachi. Rows of empty Shell tins returned from the boat to the beach may be observed in the right foreground.

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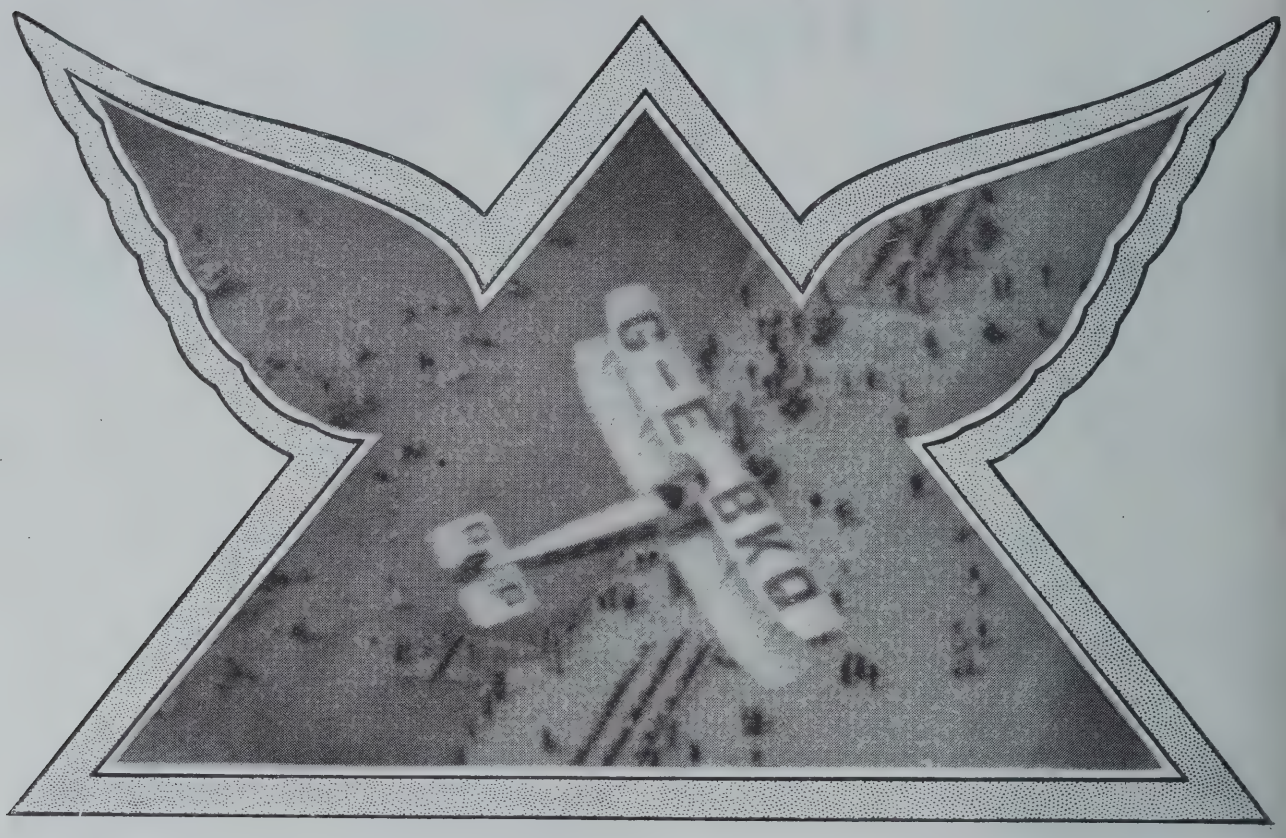
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ON THE TREATY OF LOCARNO.

When the Treaty of Locarno was signed in London on December 1, 1925, the newspapers of the World delivered themselves, as had been expected, of all the usual platitudes about securing universal peace, guaranteeing the friendship of nations, and so forth. Just as if all History had not taught us ever since it existed that treaties like piecrusts are made to be broken. The news-sheets which made most of that absurd phrase about "a scrap of paper" when Germany found herself forced to invade France through Belgium in 1914, as all students of strategy knew she would do, were the very papers which on Dec. 2, 1925, were most enthusiastic about this new bond between the nations. But the view of the intelligent human being was expressed by a practical-minded youngster in reply when asked whether there was any importance in history about the date Dec. 1, 1925,—"But what's a treaty worth, anyway?"

Probably the majority of the readers of this paper and others are divided, almost fifty-fifty, into those who regard the Treaty as having a definite value like a business agreement and those who regard it purely as piecrust. But the truth is that while the Treaty itself is only a scrap of paper, or at best rather tough parchment, the spirit which lies behind the signing of the Treaty is of very great importance. What it really means is that the civilised nations of Europe have at last banded themselves together as a solid block against any possible warlike operations by the Russians and other Oriental peoples.

The Balance of Power.

The Treaty also means that England is as usual following her set policy of restoring the balance of power. We have in fact achieved a real League of Nations, one such as that at which the great Cardinal Wolsey aimed, an alliance which can be backed by force of arms, and not merely by pious resolutions such as that theoretical League of Nations which exists at Geneva and costs its supporters so much money.

In the early days of the Nineteenth Century when France overran Europe England allied herself with Germany and the result was the battle of Waterloo. A hundred years later when Germany threatened to be a danger to Europe England threw in her lot with France and the result was the War 1914-18.

That war was wrong in that we had to fight our closest blood relations, the Germans, but it was a political necessity regrettable though it might be. And as one wrote in this paper on August 4, 1914, the day war was declared, the thing that was all wrong about that war was that we and the French should be fighting on the same side as the Russians. But that was the fault of the French in that France had already contracted that unnatural alliance when we agreed to act as her protector.

To-day we find the Powers of Europe once more ranged as they should be. The Nordic and the Mediterranean peoples stand side by side against Oriental barbarism and Oriental ambition. The Treaty of Locarno does in fact bring about precisely the alliance which one has been advocating in this paper for the past six or seven years—a policy for which one was generally ridiculed in the early days of one's preachings.

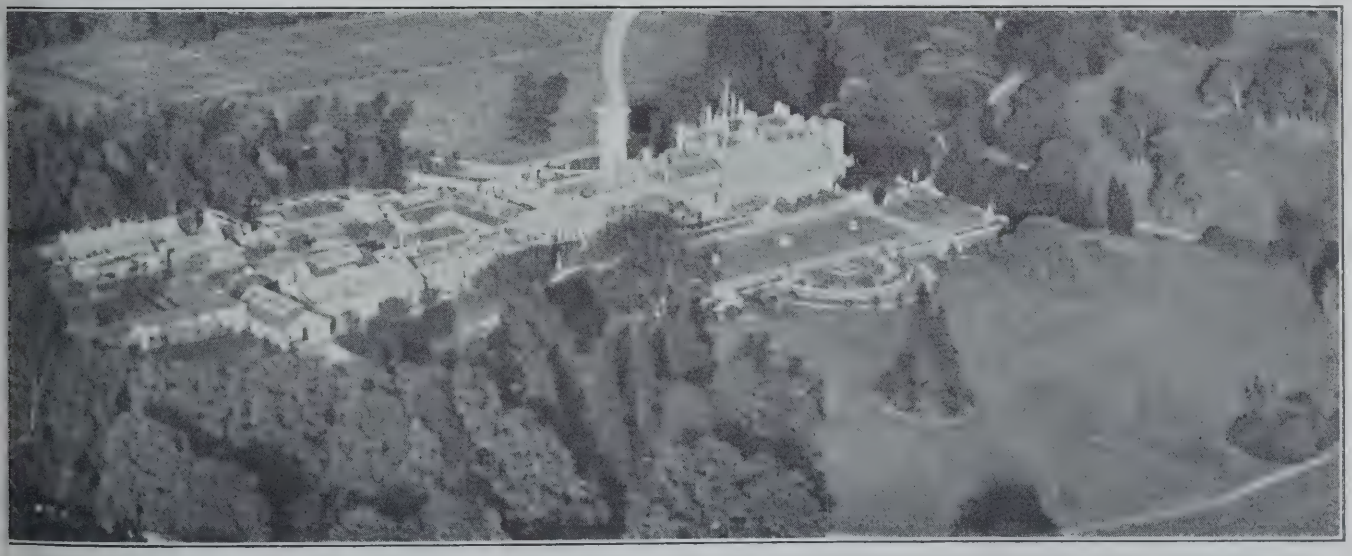
The Next Fighting Line.

Those who have read The Aeroplane regularly will find another interesting point about this alliance. Quite a long time ago, in writing on the Western Front in the Next War, one pointed out that in the ordinary course of affairs the strategy of the next war would result in the Germans and ourselves, with the help of the Scandinavian and other Nordic peoples, having to defend a line running roughly from Danzig to the Alps, while the Mediterraneans, represented by the French and Italians, would defend a line from the Alps to the Adriatic, in other words the Italian fighting line of 1914-18.

Now the Treaty of Locarno brings such a line into existence almost automatically. Poland and Czecho-Slovakia are members of the new Alliance, but it may be assumed that in the event of a Russian invasion the Eastern portion of Poland and East Czecho-Slovakia will be occupied by the Russian Armies before any kind of fighting line can be established. Probably an attempt will be made to defend Warsaw, as the capital of Poland, and we shall certainly try to save Vienna from the Orientals as it was saved from the Turks in the past. And so the tactical area of the war, which will probably range over a hundred miles or so instead of being tied down to a mere trench line as it was in 1914-18, may well run from the Gulf of Danzig on the Baltic down to Warsaw and thence by Krakow to Vienna and so to Trieste on the Adriatic.

The Ethnological Position.

From the ethnological point of view there is much interest in the new alliance. Although the Czecho-Slovaks and the Poles would deny vehemently that they are German the



BENTLEY PRIORY, STANMORE, which has been purchased by the Air Ministry, photographed from the air by the Surrey Flying Services. Bentley Priory is to be the new Headquarters of the Inland Area when Uxbridge becomes the Headquarters of the Fighting Area, Air Defences of Great Britain. The Units administered by Inland Area include the R.A.F. Depôt, the Aircraft Depôt, and two Squadrons at Henlow, and the Units included in No. 1 Group, Kidbrooke; No. 3 Group, Spittlegate; No. 6 Group, Kenley; and No. 7 Group, Andover.

fact remains that they are racially much more closely related to the Germans than they are to the Russians, and in their Western parts the native language is German. There is a large proportion of square-heads, call them Mongoloid or Japhetic or what you will, among the Poles and Czecho-Slovaks. But the people of those nations are predominantly long-headed and therefore of our own race.

On the other hand it may be noticed that the Jugo-Slavs and the Bulgars and the Roumanians, of whom a much larger proportion are of the square-head race, are left outside the Alliance. And by this Alliance the "Little Entente" composed of Poland, Czecho-Slovakia, Jugo-Slavia and Roumania, of which we heard so much a year or so ago, is neatly split along racial lines.

The Hungarians, who are admittedly a Mongoloid people, are left out of the Alliance. And it is fairly safe to assume that the little remnant which is left of Austria will before very long ally herself to the German Reich, the population being of the purest German blood, and so will naturally come into the alliance.

Varying the Versailles Treaty.

The question which obviously arises from this alliance is how it will affect the provisions of the Treaty of Versailles. There can be little use to anybody concerned in bringing a disarmed Germany into an offensive and defensive alliance. And as a matter of fact, from a point of view of the other members of the alliance, Germany without an army and navy, though not a military danger, would be distinctly a commercial danger.

The money which all the other members of the alliance are obliged to spend on maintaining their Fighting Services can be expended by disarmed Germany on subsidising commercial enterprises to the disadvantage of her neighbours. And in the event of war with Russia the said neighbours would be obliged to arm Germany at their own expense. Therefore it is only rational to assume that in due course the Treaty of Versailles will be amended to allow Germany to maintain an Army and Air Force on the same proportionate scale as the other nations which compose the Alliance.

Our Mutual Advantage.

Such a modification of the present regulations in Germany is bound to react for the good of aviation in Europe. German aircraft designers will be allowed to give full scope to their ingenuity and will build bigger and better aeroplanes, which by force of competition will compel us also to progress more rapidly. And when Germany is allowed to build bigger and better aircraft we on our side can reasonably ask the permission of the German Government to fly our own big aircraft across Germany. And thus we shall be able to extend British air lines across Europe.

The development of air lines across Germany will naturally be of considerable use when the war with Russia begins. It will mean that our war machines journeying to their posts alongside our German allies will have properly established aerodromes and proper ground communications all the way so that we can get our aircraft matériel and personnel through to the war area with very little more trouble than we used to have in getting over to the fighting line in France in 1914-18.

Also the development of such air lines will facilitate greatly all our dealings, Service and civilian, with our German allies. So the sooner the Treaty of Versailles is modified to abolish the infamous "Nine Points" and to allow of the construction of German aircraft of useful dimensions the better it will be for everybody concerned.

The German Bridge.

Some time ago, when writing of the next war, one pointed out that we shall have to send the Home Defence Units of the Royal Air Force to Germany on the outbreak of war, much as the Territorial Army went to France of its own accord in 1914 and early 1915, and that our Air Force and the British Army's Expeditionary Force would have to go to Germany bodily to hold Germany's Eastern frontier against the Russians until Germany can organise, train and equip her own land and air forces. That article was published quite extensively in Germany and it drew from certain quarters in Germany the retort that Germany was not going to be turned into a barrier to maintain English and French power in Western Europe but that Germany preferred to be a bridge for trade to the East.

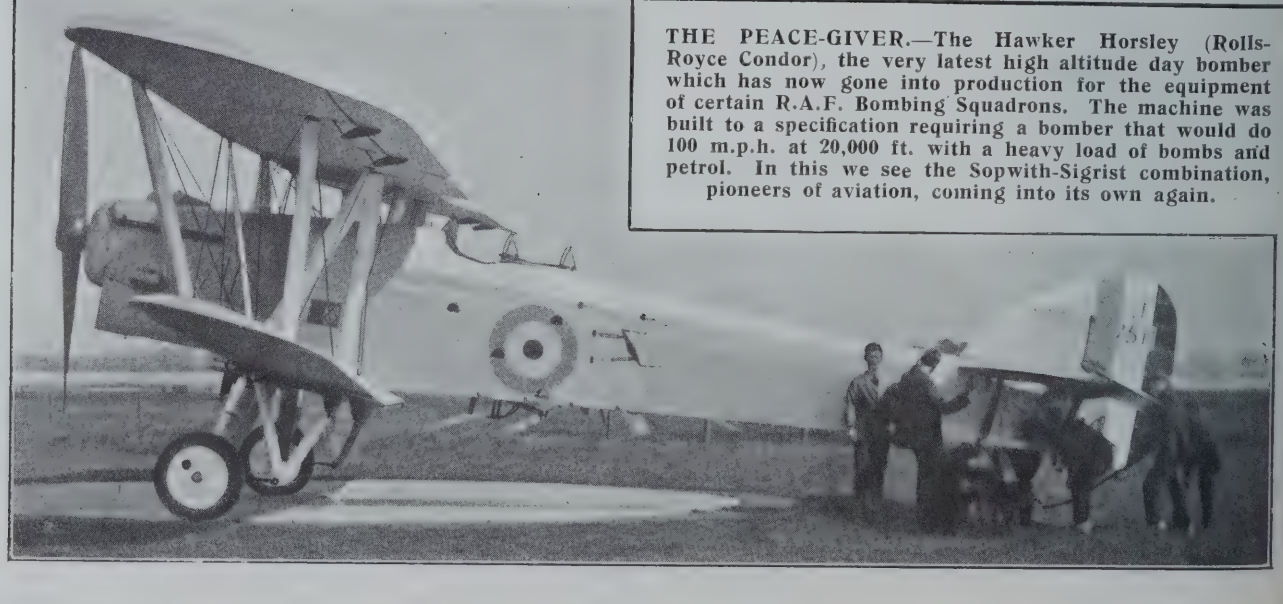
The Treaty of Locarno shows that Germany's statesmen, as represented by Doctor Luther and Doctor Stresemann who signed the Treaty on behalf of the German people, recognise the fact that though Germany may trade with her barbarous Oriental neighbours for a while, the time will come when trade across that bridge must stop and either the bridge itself must be broken or those who hold the bridge must decide whether its eastern end shall be a bridgehead for the armies of Western Civilisation or whether its Western end shall be the outlet for Eastern barbarism in Europe.

As one said in reply to one's friends in Germany, when German refugees from Poland and Czecho-Slovakia came trooping into the cities of Germany with authentic tales of atrocities far worse than anything that was ever charged by either belligerent against the others in the War 1914-18, the German working man, however much he may have been inclined towards Bolshevism, will stand up and fight for his Fatherland as gallantly as did those German soldiers who from 1914 to 1918 held out against the twenty-two Allies and at the finish prevented even a single hostile soldier from entering Germany by force of arms. The memory of that historical achievement will be of high value to the moral of Germany's new armies when they are called upon, perhaps only a few years hence, to stand against their racial enemies in the East.

A Great Achievement.

The Treaty of Locarno is one of the greatest accomplishments in the World's history. It is, one believes, the first time that an alliance has been brought about almost purely on racial lines. Sir Austen Chamberlain fully deserves that high honour which His Majesty the King has conferred upon him. He has proved himself to be a worthy son of his distinguished father. He himself would be the last to claim any credit for cleverness. But he has done his duty as he saw it. He has performed faithfully his allotted task in the Great Scheme and for such work he deserves the respect of his fellow-countrymen.

The peace of Europe is not assured by the Treaty of Locarno. One doubts whether the peace of Europe will even be prolonged by it. The Treaty itself can enforce nothing on those who signed it, for there is no worldly power to punish those who break it. But that international recognition of national interests which produced the agreement, of which the Treaty is the outward and visible sign, is a guarantee of the safety of civilised Europe.—C. G. G.



THE PEACE-GIVER.—The Hawker Horsley (Rolls-Royce Condor), the very latest high altitude day bomber which has now gone into production for the equipment of certain R.A.F. Bombing Squadrons. The machine was built to a specification requiring a bomber that would do 100 m.p.h. at 20,000 ft. with a heavy load of bombs and petrol. In this we see the Sopwith-Sigrist combination, pioneers of aviation, coming into its own again.

Consistent Reliability!

Three Napier engines fly an aggregate of

405,000 miles

"Three Napier 'Lion' type engines have each run an average of 1,350 hours." *Times . 26-9-25*

The above extract is taken from the report on civil aviation.

Three engines—1,350 hours flying each. This is equivalent to approximately 135,000 miles each engine—all on strenuous commercial service.

Such consistent reliability on daily service is one reason why the Napier "Lion" is in such demand for commercial purposes.

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ON COSTS AND VALUES.

So much has been said in public speeches and written in print and such a lot of argument has taken place of late in clubs and places where they aviate, about aero-engines, British and foreign, that by way of a change from writing about aircraft firms one proposes this week to say something about aero-engines, with particular reference to the reason why so few engines cost so much money when one can buy so much motor-car for so few units of money in any country.

In view of the fact that the Royal Air Force has decided to use Fairey III D. biplanes with Napier engines for the projected formation flight from Cairo to the Cape early next year, and because Napiers were used recently in our Schneider Trophy racers, one proposes to describe to the best of one's ability one's impressions of the way in which Napier engines are produced, by way of explaining the relations between cost and value.

The Napier firm was originally founded in 1808, to make printing machinery. At the time of the Crimean War it was making guns, and bullet-making machinery for Woolwich Arsenal. At a later date it made machinery for the Mint and later still manufactured roller skates. So it has long been connected with war material and locomotion, publicity and money-making.

One's own earliest recollections of the name date to somewhere about 1896 when Mr. Montague Napier, then connected with the firm of Marriott and Cooper, insisted on riding a high bicycle, of the type then known as the "old ordinary," along the Birmingham road from Coventry at a speed which puzzled some of the speed merchants of those days on their racing "safeties." That was long before motor-cars came into existence and when roads were still fit for cycling.

Thereafter came the association of Montague Napier with S. F. Edge, and the alliance with H. T. Vane (who when one first met him was with the Dunlop Tyre Company) which produced a motor-car which quickly became among the most famous in the World. It broke speed records and long distance records and won hill climbs with monotonous regularity. A Napier car was the first vehicle in the World to reach, and exceed, a speed of sixty miles an hour for twenty-four hours on end, a feat which was performed by Mr. Edge in the earliest days of the Brooklands track. The Napier car maintained its World-wide reputation in the sport of motoring up to the outbreak of war when the Directors of the firm were lured into the Aircraft Industry.

The Turn to Aircraft.

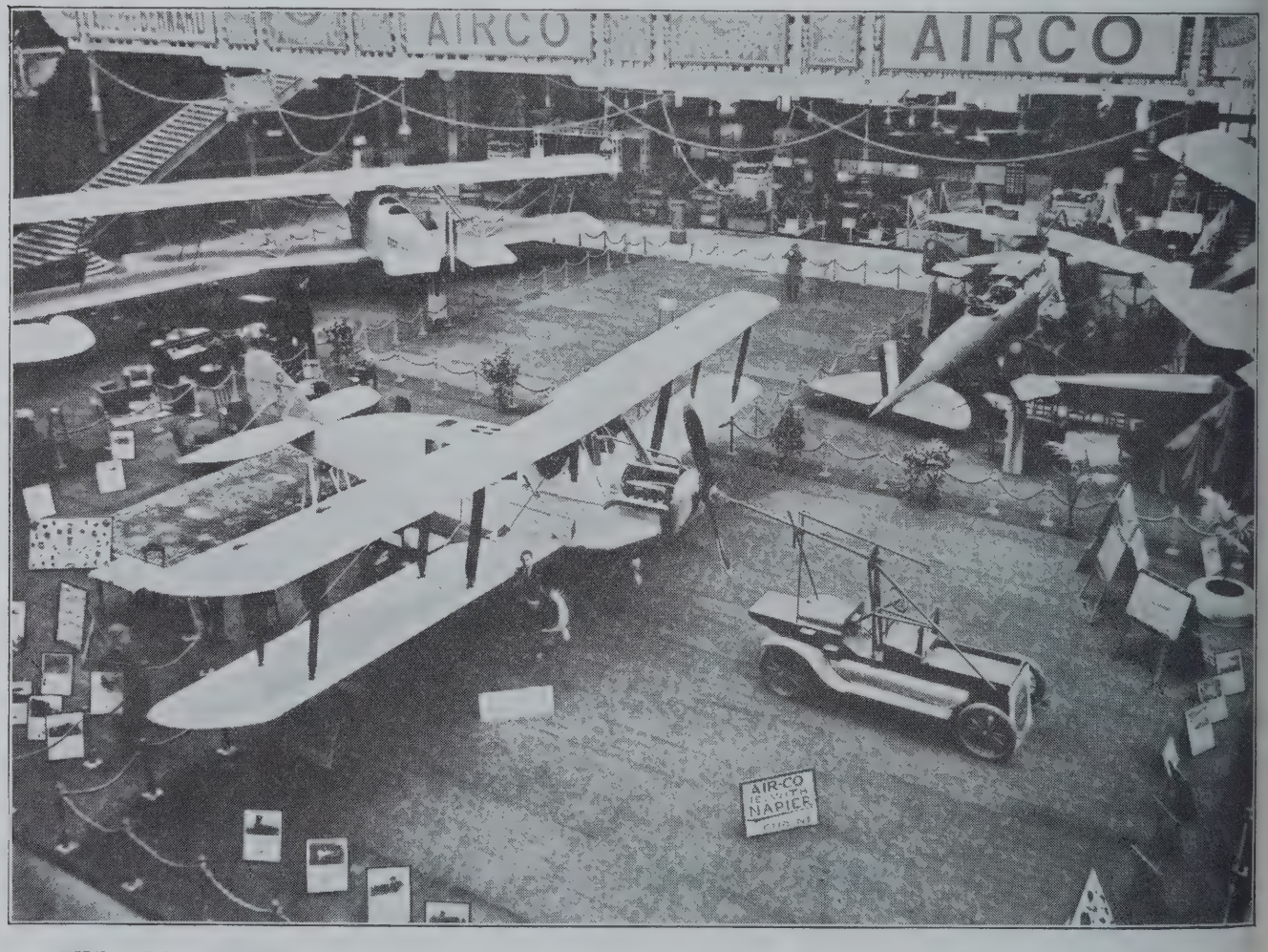
First of all they started making air-cooled engines to the designs of the Royal Aircraft Factory. And they built a quantity of very good aeroplanes, also to official designs. Then Mr. Vane, with his usual sound commercial judgment decided to produce an aero-engine of their own. The result, after some years of patient experiment and development at immense expense, was the Napier Lion.

Several issues of The Aeroplane would be necessary to recount in anything like detail a history of the doings of the Lion engine from the time the first was produced. One can only say that our various enemies were fortunate in that the Lion only appeared fully developed after the War was over.

Since then it has steadily enhanced its own reputation and, by doing so, the reputation of British aircraft material. So great has been the success of the Lion that quite recently the Directors announced that the construction of Napier cars had been definitely suspended while the firm is endeavouring to execute the orders which it has in hand for Napier aero-engines.

Such a change-over was a very bold step to take. And in taking that step Mr. H. T. Vane and Mr. Montague Napier showed a faith in the future of aviation which might be regarded as even too venturesome but for the fact that they have throughout the latter-day history of the firm proved the accuracy of their foresight and their courage in backing their own opinions.

Their courage has of course been supported by the very satisfactory financial results already shown by the Napier aero-engines. The Napier balance sheet for last year's trading is public property and therefore one can say that it showed a profit of £178,000. A certain amount of this was derived from the sale of cars already constructed and from the sale of spare parts for Napier cars of all vintages back to the dark ages—there are Napier taxicabs of about 1912 or



THE FIRST OF ITS KIND.—A De Havilland 16.—The first air-liner to be fitted with a Napier Lion. It is here seen in the Paris Aero-Show of 1919-20. A Hucks engine-starter is seen in front of it.



A Silhouette of the FAIREY "FOX" AEROPLANE.

The "Fox," which is being supplied in quantities to the Royal Air Force, stands at the forefront of aerial equipment to-day.

Its performance far surpasses that of any other aeroplane of its class throughout the world.

It is interesting to note that the Fairey "Fox" is fitted with the Fairey "Felix" D.12 Engine and with a Fairey-Reed Air-screw, both of which contribute largely towards the remarkable speed and efficiency obtained with this machine.

The Fairey Aviation Company Ltd.

Head Office and Works:
HAYES, MIDDLESEX.
Telegrams: "Airily," Hayes. Telephone: 136, 137, 138 Hayes, Middx.

Works also at:
HAMBLE, near SOUTHAMPTON.
Telegrams: "Airily," Hamble. Telephone: 17 Hamble.



THE LATEST MANIFESTATION.—The English Electric Co. Ltd. Kingston (two Napier engines) designed by Mr W. O. Manning. Its hull is built entirely of duralumin. It put up a fine performance flying round from Lytham to Cattewater.

earlier still running satisfactorily on the streets of London and elsewhere. But the bulk of that profit, which one guesses without any authority whatever as being somewhere about £150,000, must have been derived from the Napier Lion aero-engine.

That being so, and having confidence in the ability of their design staff and engineering staff to keep the firm's products up-to-date in design and reliable in construction, the Directors were certainly justified in staking the firm's immediate future on aero-engine work. And so one judged it wise in one's own interest to go and see for oneself precisely how the Napier engine is constructed. For The Aeroplane newspaper can at any rate pride itself on never having upheld in its editorial comments the reputation of any product which was not worthy of support.

At the Napier Works.

One has visited the Napier works on various occasions but always with a party of official or semi-official visitors to whom things have been explained in a manner suited to their understanding. On Nov. 25 one was the only visitor and had the pleasure of being taken round by Mr. C. G. H. Winter, the firm's own tame globe-trotter, and Mr. A. J. Stubbings of the design staff, both officers of the R.A.F. during the War. Also Mr. Stubbings is an officer of the R.A.F. Reserve and recently did his annual seaplane training at Brough.

One could not have had better companions. What Mr. Winter does not know about aero-engines in the Services of foreign Powers and about the behaviour of various types under service conditions is hardly worth knowing. And Mr. Stubbings, being at the same time a practical aviator and a practical design engineer, not only knows what an engine has to stand in use but knows the construction of the Napier from the smallest washer upwards.

The first shop we visited was the heavy machine shop where big stuff such as crankcases, cylinders and crankshafts are made. Here one got a first insight into why a first-class aero-engine costs so much.

The mere raw material as it comes straight from the aluminium foundry or the steel works into the machine shop is a work of art compared with the kind of stuff one had to handle in one's own early days in machine shops. One of the prettiest bits of casting one has seen is the rear-end-cover of the Lion, the box which carries the bearings for all the subsidiary drives of the engine.

There is a double bevel wheel driven by a single dog from the tail end of the engine crankshaft. This bevel drives the three shafts which run to the tops of the cylinders and drive the camshafts. It also drives two small pinnions which connect to the magneto drives and it drives a downward vertical shaft which drives the oil pump and water pump. So it may be seen that it works fairly hard for its living.

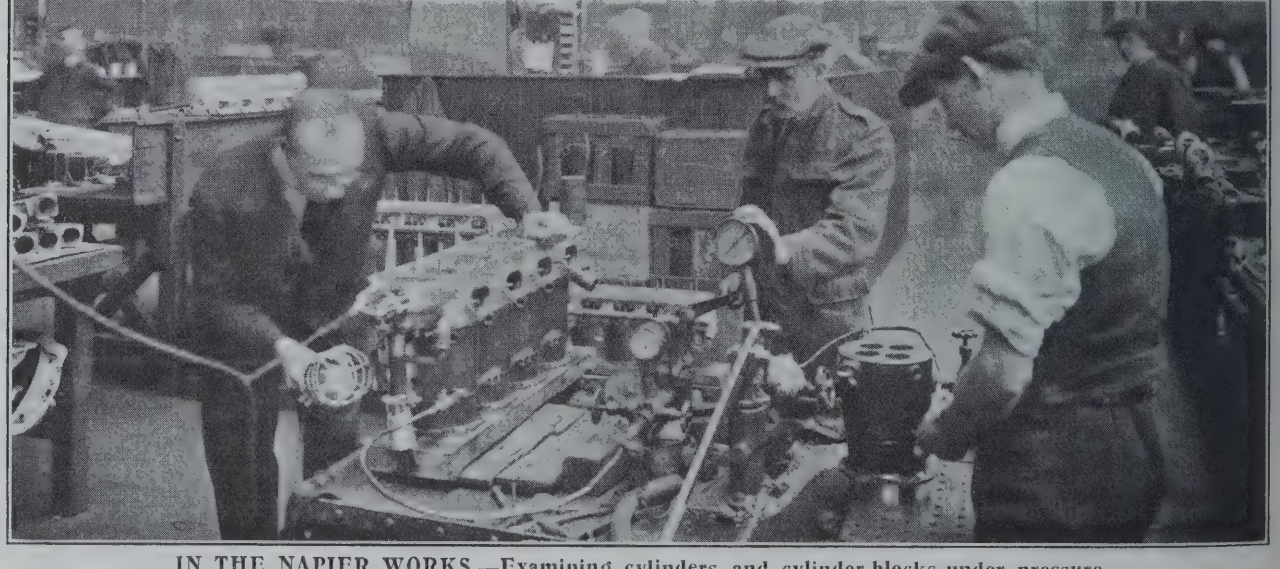
The inside of that box as it comes from the foundry is more like a sculptor's job than a caster's and one has an immense respect for the core-makers who are responsible for its intricate contours.

The main crankcase castings, though on a less complicated scale, none the less call for considerable skill in production. The sides of the crankcase are thin, as they are really only oil containers, and after casting they naturally cool and contract quicker than the heavy cross-webs which carry the main bearings. Consequently to prevent the cases from cracking in cooling the sides have to be kept hot with blow-lamps while the heavier parts are cooling off.

Liquid Tests.

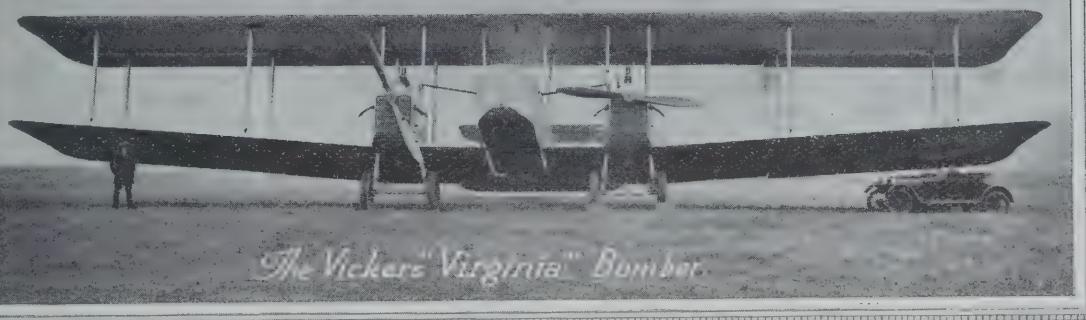
At each stage of the machining of these aluminium parts they are subject to what is called the hot water test. All the holes which have been machined in the castings are plugged with screw stoppers and the whole box is made air-tight. Then it is put into hot water to expand the metal, and compressed air is pumped into it at high pressure so that if any minute holes in the casting are exposed in the process of machining the air will leak through the holes and indicate their presence by bubbles in the water, just like testing a tyre tube. In addition to the hot water test they also subject it to a paraffin test when cold, in case holes which close themselves when the metal is hot and expanded may open when it is cold and contracted. Paraffin will leak through almost anything. In fact it will seep through a hole which is practically air-tight.

One saw an excellent example of this while one was in the examining section of this shop. The lower half of a crankcase partially machined and all polished outside was standing on a bench filled with paraffin. One minute seepage showed in a curve of the casting where the airscrew gear-box



IN THE NAPIER WORKS.—Examining cylinders and cylinder-blocks under pressure.

VICKERS LIMITED



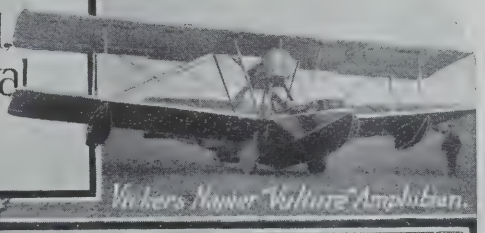
The Vickers "Virginia" Bomber.

SBAC

AEROPLANES, SEAPLANES AND AMPHIBIANS for all Commercial, Military & Naval Purposes.



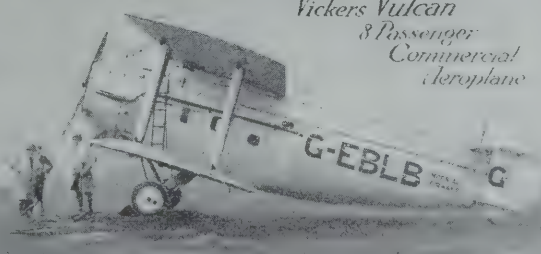
Vickers "Vixen" Two seater Fighting in Schneider Cup Race, 1924.



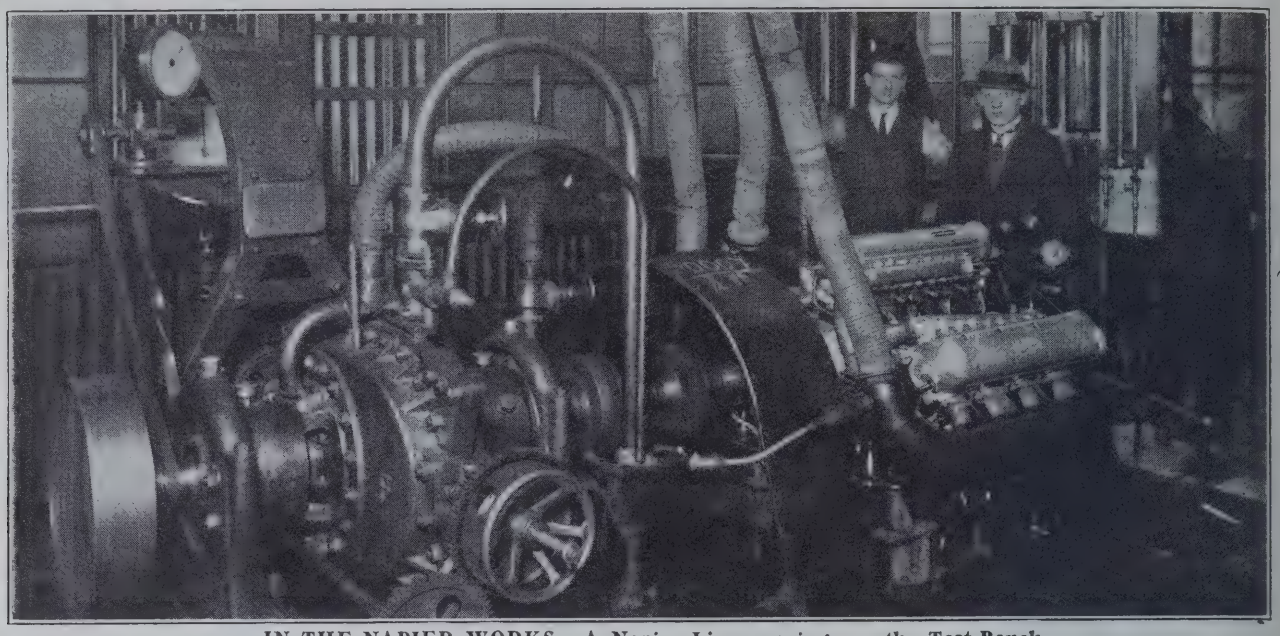
Vickers Monoplane "Vulture" Amphibian.

Aviation Department,
Vickers House,
Broadway,
LONDON, S.W.1.

Telephone: Victoria 6900.
Telegrams: Vickers, Sowest, London.
Works:-
WEYBRIDGE, SURREY.



Vickers "Vulcan" 8 Passenger Commercial Aeroplane



IN THE NAPIER WORKS.—A Napier Lion running on the Test-Bench.

is bolted on. In an ordinary motor factory making cheap cars, if such a hole were noticed at all, it would simply be plugged up by welding a piece of aluminium into it. But at the Napier factory the whole of that piece of casting is scrapped.

The casting itself in the first place must have cost anything between £15 and £20, and with the machining and polishing and labour which had been spent on it generally it must have cost the firm anything between £30 and £40. And its value as scrap aluminium was perhaps £4.

That gives a fairly good idea of how the money goes in building aero-engines. And, be it remembered, this particular hole was spotted fairly early in the proceedings. Such a hole might only be discovered after the very last machining and polishing process had been completed, the hole actually being exposed by the last operation on the casting taking off the film of metal which had hitherto prevented the hole from appearing as such. And in such a case the loss would probably come to £100 or so.

MACHINING.

The process of producing the cylinders is equally instructive. The original cylinder blank, which looks rather like a big flower pot, weighs 100 lbs. In its finished state it weighs 10½ lbs. It is not the turning into scrap metal of almost 90 lbs. of perfectly good steel which costs the money, it is the amount of machining necessary to remove it which puts up the cost.

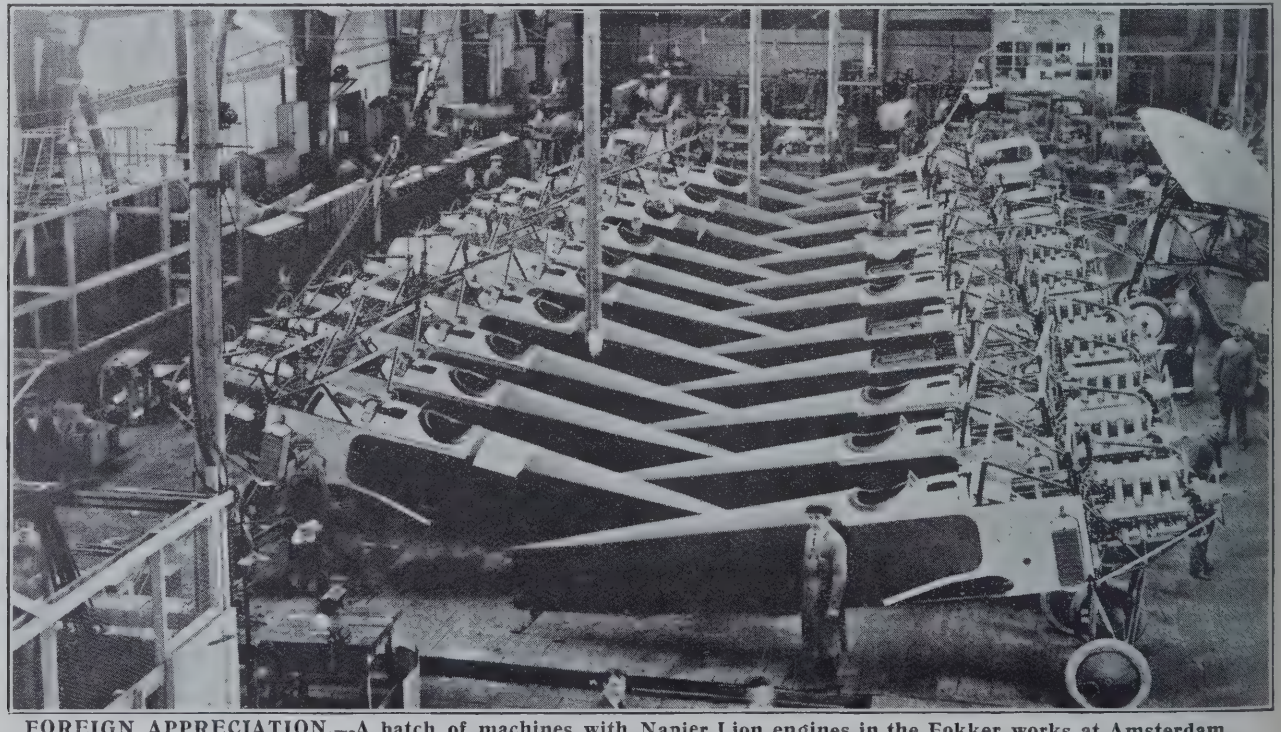
Quite a good deal of money could be saved both in the size of the blank and in the amount of machining if the firm were content to weld their sparking-plug lugs into the cylinder walls as is common practice in other forms of engines. But experience proved that welded lugs were apt to crack at the weld and so the whole thing is machined out of the solid.

On the other hand the crankshafts are not machined out of the solid as used to be common practice in petrol engines. In fact at one time firms used to boast that their crankshafts were machined out of the solid, just to show that they were built regardless of expense. The Lion crankshafts come from the steelworks bent with all the cranks and crank-pins in their proper position, just as if somebody had taken a colossal steel wire and bent it to a rough imitation of a crankshaft.

Actually the cost of forging a crankshaft of that sort from a steel bar is considerably more than the cost of machining it from a solid block. The reason for doing it is that being bar steel the grain of the steel follows the curves of the various crankings whereas in machining from the block the grain would run lengthwise on the crank-pins and main bearings but would be crosswise on the webs.

That was about the one defect from which the German engines suffered during the War 1914-18. To save time they machined their shafts from the block. And in consequence quantities of them broke across the web.

The care with which the Napier crankshafts are produced



FOREIGN APPRECIATION.—A batch of machines with Napier Lion engines in the Fokker works at Amsterdam.

ROLLS-ROYCE
AERO ENGINES
THE BEST IN THE WORLD

Result of the 'Famous Flights' Contest published in 'AIRWAYS,' of September, 1925

IN this competition readers were asked to vote as to the merits of six famous flights of recent years. The novel form of the contest aroused great interest, and several hundreds of entries were received from all over the country. The result of the voting places the six flights in the following order of merit:—

1. The Trans-Atlantic Flight by Alcock & Brown. (ROLLS-ROYCE engines.)
2. Cobham's 17,000 miles Flight to India and back. ('Puma' engines.)
3. The Ross-Smith 11,294 miles Flight to Australia. (ROLLS-ROYCE engines.)
4. The American Round the World Flight. (American 'Liberty' engines.)
5. The Airship R34's Voyage to America and back. (Sunbeam airship engines.)
6. Cmdr. Goble's 9,000 miles Flight round Australia. (ROLLS-ROYCE engines.)

It will be noted that three of these famous flights were made with ROLLS-ROYCE aero engines, and that all six flights were made by WATER-COOLED aero engines.

ROLLS-ROYCE LIMITED
14-15 CONDUIT STREET, LONDON, W.1
Telegrams: Rolhead, Piccy, London *Telephone:* Mayfair 6040 (4 lines)

may be judged from the fact that after the shafts have once been machined all over and before they are subjected to any of the finishing machinings they are balanced on a knife-edge to make sure that they are coming out true. And the final finished crankshaft has to balance to within a dwt. or two.

In a general way one would hardly think that it was worth while reamering and polishing the insides of the holes in the bearings of a crankshaft. Nothing happens there, so apparently they might be left just as the boring tool leaves them. But the Napier Company have found that if a shaft is stressed to its utmost limit by running an engine to destruction the shaft will ultimately break along the tool-marks inside the crank bearings. Just that slight roughness is enough to give a crack a start.

Consequently the inside surfaces are just as carefully polished as the outside. Apparently a polished surface of steel, or other metal for that matter, has some curious effect, like the surface tension of water, which just prevents the skin from breaking.

And of course all this extra work costs money. It would not be worth while in a car engine which is never asked to give its last ounce of power. But it is worth while in an aero-engine on which men's lives and the fate of nations may depend.

Of course, even in the most carefully-made engine, there is always the last straw which breaks the camel's back. And no amount of pure workmanship will then prevent a breakdown, any more than shaving and massaging would prevent the said camel's back from breaking. But it does put that last straw on top of a very much bigger load.

Testing and Gauging.

All the other heavier castings and parts of the engines are treated with equal care. Every stamping that comes into the shop has an excrescent piece left on it which is sawn off and subjected to tensile tests, and Brinnel tests for resistance to impact, and chemical tests as to its actual composition. In the ordinary motor factory perhaps one casting or one stamping in a batch of a dozen or a hundred may be tested to see whether the batch is up to standard. But in the Napier Works each individual part is so tested. In fact the test piece which is left on the auxiliary connecting rods has in it about a quarter of the amount of metal in the whole rod.

Also each part is weighed at the various stages of its machining to make sure that it is coming out ultimately to exactly the right weight.

One of the most impressive things in the Napier Works is the fact that all gauges used for machine work are checked against National Physical Laboratory standard gauges once a week. That is to say, every week all gauges are withdrawn for testing and a new lot which have been duly checked are issued to the shop.

This is rather a change from one's own early days when the machining hands used their own gauges for years and years. In fact one remembers one old man who when the accuracy of his caliper gauge was questioned protested that he had used it for forty years, and remarked in his best Coventry English that he "'adn't never found nothink wrong with it."

Light Parts.

The work in the light machine shop, as it is called, though in fact demanding no more accuracy than that in the heavy machine shop, is perhaps rather more impressive because it deals with smaller parts and more intricate work. As an example of the kind of work done there one invites those who have the handling of Napier engines to have a look at the way in which the bottom cap of the main big-end bearings is fitted in a kind of dovetail joint. The amount of machining in that joint alone gives some indication of where the money goes in making aero-engines.

One examined several of these bearings in the shop, and in their original state, straight from the machine, when they are bolted in place it is impossible to see where the join comes. The durability of the white metal in the bearing very largely depends on the accuracy of the fitting of that joint, and the quality of the workmanship may be judged from the fact that Imperial Airways, who probably use their engines more continuously than any R.A.F. or other Service engines are used, have got as much as 400 hours' work out of big-end bearings before they have needed re-metalling.

Naturally machine work of such quality needs deadly accuracy in the tools employed. And consequently the tool-grinding shop in the Napier Works is just about as big as a whole machine shop in a decent-sized factory. And there are a dozen men in the department which inspects the tools when ground.

Some idea of the accuracy demanded from the tools employed may be gathered from the cutting of the adjusting threads on the valve tappets and inside the valve stems. Few firms will guarantee an internal thread, such as that which runs down inside the valve stem of the Lion, to be accurate for more than was half-an-inch. The Napier people guarantee these internal threads to be perfect for the whole inch-and-a-quarter of their length.

What this means is indicated by the fact that when the Napier Company first started on this policy of perfection they produced something like 80 per cent. of scrap in threading their valve stems. Now, thanks to perfection in screw-cutting tools, the amount of scrap has been got down to something much nearer 10 per cent.

Another indication of the care which is taken over the Napier valves is the fact that each individual valve seat and each individual locking ring is subject to a Brinnel test for hardness.

In the light machine shop one came across one machine employed simply on turning up test pieces from aluminium castings so that the tensile strength of the material could be measured. The accuracy of the work on those test pieces, which were merely born to be torn to pieces on the testing machines was rather greater than that which one finds on the more important parts of the average motor car.

The excellence of the works management of the firm is shown by the way in which standard machine-tools are adapted for the special uses of aero engines. Ordinary gang-drills are adapted for boring the four valve holes in the cylinder heads. A standard machine-tool is adapted for machining in succession the three sets of four big holes in the top half of the crankcase which take the skirts of the cylinders. And the camshafts are bored from end to end by a very neat adaptation of a rifle-boring machine.

Grinding Now and Then.

Another example of how money goes in producing an aero-engine is to be found in the grinding shop where the aluminium crankcases have their rough-cast surfaces ground down and polished. As anybody can see for themselves who has taken the trouble to inspect a Lion engine, every little nook and cranny in the casting is ground and polished. And



IN THE NAPIER WORKS.—Examining crankshafts and crankcases.

"MOTH"

THE DE HAVILLAND TWO SEATER

LIGHT AEROPLANE

27-60 H.P. CIRRUS ENGINE.



"The completion of the Club's first 100 hours' flying on two D.H.60 Moth Machines, with no replacements other than two tail skid shock absorbers, is, I consider, a fitting occasion to comment upon the complete suitability of this type as a training machine. Its stability, ease of control, manœuvrability, economic and trouble-free running place it in the front rank of its Class."

Major S. A. PACKMAN, Instructor of the Newcastle-upon-Tyne Aero Club.

THE DE HAVILLAND AIRCRAFT CO., LTD.,
STAG LANE AERODROME,
EDGWARE, MIDDLESEX.

Telephone:
Colindale 6160-3

Telegrams:
"Havilland, Edgware."

seventy-eight (78) different sizes of grinding bobs and buffing wheels have to be used to grind and polish a complete crank-case.

Assuredly the modern workman is a luxuriant individual compared with his father of thirty years or so ago. In the first factory in which one worked, somewhere about that date, we had about fifty men in the grinding and polishing shop and we thought that we had done something wonderful when we installed a five-foot Blackman rotary fan to exhaust the emery and steel dust out of the shop as a whole.

Before then the men merely worked in an atmosphere roughly as thick as the worst London fog, and trusted to whether there was a breeze or not to blow it out of the windows—which anyhow were on the ground floor of a yard surrounded by high buildings. They were supposed to wear respirators but none of them ever did. A lot of them ate their midday meal in the shop. And if a man worked in it for three years without going down with lung trouble he did rather well.

A Reminiscence.

Incidentally the installation of that Blackman fan was solemnised by a blood-sacrifice which was rather amusing. One happened to be standing out in the yard with the foreman of the shop when the driving belt was put on the pulley of the fan, so as to see what sort of dust it fetched out of the shop. The fan started, blew out quite a healthy cloud and with it something solid, which plopped on the ground alongside us. The foreman stooped to it, and picked up the middle finger of a man's hand taken off neatly at the second joint.

We went into the shop to see what had happened, the foreman carrying the errant finger daintily between finger and thumb. As we entered the shop the millwright who had started the fan was just coming down the ladder which he had been using to reach the belt pulley. Guessing what had happened the foreman went up to him holding up his prize and remarked "'Ere, some 'uns lorst a finger." The millwright looked at his right hand, which was just beginning to spout blood, and promptly fainted in the thick dust on the floor of the shop.

Apparently he had leant his ladder against a revolving shaft in the carelessness of that contempt which is bred by familiarity. The jerk of the big belt getting a grip had shaken the ladder and he had put out his hand to steady himself on one of the stays of the fan, sticking his finger into the revolving blades just as the fan had got nicely going. However after he had been revived by the application of Friar's Balsam internally, as well as on the stump of his finger, he saw the humour of the situation and took his lost finger back to his bench in the tool shop and nailed it on the wall. There it became mummified, and he kept it there as a warning to himself and others for the future.

Shop Conditions.

In the Napier grinding shop each individual grinding spindle has a beautiful little guard over it, which communicates with a pipe running to an enormous suction fan which exhausts practically all the dust from the grinding straight out of the shop. The result is that the amount of dust floating about loose in the shop is barely enough to give a man any more than a reasonable thirst. And the men all looked remarkably fit.

As a matter of fact, the conditions in all the Napier shops were excellent, and one was particularly struck by the healthy look of all hands. Naturally the men employed on such highly specialised work are of a type distinctly superior to those alongside whom one worked some thirty years ago. They are of course much better educated in these days and have a better idea of looking after themselves. Probably they do not drink as much beer for one thing, and in any case the beer of to-day has not the alcoholic content which ours used to have. And the pastimes and sports of the modern factory worker are distinctly on a higher plane than ours used to be.

So there is good reason for the men in such workshops as those of the Napier Company to look fit and as contented with their lot as any one can be who has to earn his living. And the Napier Company's people have additional reason for contentment in these hard times because most of the 1,700 men on the pay-roll are working overtime. Which incidentally does not look as if the aircraft business is any relation to a decaying industry.

Assembling.

The comparatively small section of the works which is devoted to carburettors is just as carefully organised as everything else. The Napier carburettor includes a diffuser of a type used on some cars but mostly it is a pure Napier aero-engine affair. Just by way of showing how many things have to be considered, the throttles of the carburettors are made of bronze instead of aluminium in case the engines are used for work at sea where salt water spray may be sucked through the air intakes, as it would corrode aluminium. All carburettors are tested with actual aviation petrol under arrangements of pressure and suction such as would occur in actual flying.

There is little one can say about the erecting shop because that is merely concerned with putting together material which is already so accurately machined that there is no fitting to be done. But in the erecting shop the same careful system of inspection and testing of all assembled parts exists as in the machine shops.

The firm's chemical department is itself big enough to supply quite a decent-sized chemist's shop with its stock-in-trade. In its vicinity one discovered a thing which if one had seen it in an American factory would have been put down as a still for the production of bootleg liquor. But one was told that it was only producing a special kind of dope for the detection of minute cracks in castings.

Apparently when wiped over a metal surface it will find its way into the tiniest fissure, and being of a dark brown colour it shows the exact line of the fault when the surface has been wiped clean again. One suggested that a supply of it might be sent to the Technical Department of the Air Ministry, but after all perhaps that would be what the divines call a "work of supererogation," in that no detecting agent is necessary in the cases of the cerebella of the majority of experts.

The test shop seemed very busy with a number of Lions and a single Lioness (the inverted type of Lion) on the benches.

But one's guides suddenly became guards when one suggested a visit to the experimental shop. They denied with oaths that such a thing as a two-row Vee-type Napier was to be seen. They said they knew nothing about carburettors tucked in between cylinder blocks, American fashion. And altogether they very nearly convinced one that the Vee-type Napier does not exist.

But all the same one is looking forward in pleasurable anticipation to seeing what Mr. Wilkinson has done in the way of a Vee-type of his own, and how he has reduced frontal area, and where he has put his carburettors to reduce pipe lengths and increase ease of starting and smoothness of running.

One's general view of the works gave one an immense respect for the organising skill of Mr. George Pate, the firm's chief engineer, and the various modifications in the modern Lion gave one an equal respect for the designing ability of Mr. G. S. Wilkinson, the chief designer.

Ever since its earliest days the Napier firm has held the highest reputation for workmanship. One is not sufficiently antiquated to have used the firm's roller skates, but one does remember the earliest Napier motor-cars, and one has particularly tender recollections of the three driven by Mr. S. F. Edge, Mr. Charles Jarrott and Mr. Jack Stocks in the Gordon Bennett Race in Ireland in 1903. Also one derived much joy from the old beetle-shaped Napier which used to pervade Brooklands somewhere about 1908. And there was a certain 15 h.p. Napier belonging to the ever-lamented Harry Swindley of *The Autocar*, which stuck in one's memory as one of the nicest cars of one's acquaintance until one drove the 40 h.p. Napier of 1922 and that still remains in one's own estimation the best car one has ever driven.

The Napier aero-engines, developed during the War, have increased the high reputation of the Napier firm. The work they have done in the Flying Services of all nations and the work they have done on our own air lines, and such great flights as Major Zanni's journey to Tokio in seventeen days, have proved them to be at any rate unbeaten for reliability among the aero-engines of the World. And one believes, though no actual figures have yet been published, that the special racing Napier Lions, giving 700 h.p. or thereabouts, which were used in our Schneider Trophy racers, did in fact give the greatest power for their weight of any engine yet produced anywhere. And British aviators may be sure that with the present technical and commercial staff the Napier firm will continue to enhance the reputation of British aircraft material all over the World.—C. G. G.

FRENCH TRADE PROGRESS.

The Breguet Co. are employing at the moment over 2,000 workmen, and two machines, complete with equipment, are being turned out every day. The Breguet XIV is still in production, the above figure relating to this machine, and in addition, large contracts for this machine have been let to other firms, notably the Ateliers des Mureaux, Bernard, de Monge, etc.

The Caudron Co. are working on a large order for the C.59 training machine fitted with the 180 h.p. Hispano-Suiza engine. In addition to those for the French Navy, this type is also being supplied abroad. One complete machine is being turned out per day.

It is announced by the Société Industrielle des Metaux et du Bois (S.I.M.B.) that they have discarded the use of the word "Ferbois" and that in future all machines will be known by the name "Bernard," after M. Adolphe Bernard, the founder and director of the firm.

THE FLIGHT TOWARDS THE CAPE.

The sympathy of all concerned with aviation will be with Mr. Alan Cobham and Mr. Elliott in the trials and troubles which have beset them in their attempt to fly from England to the Cape of Good Hope. There have been times when this paper has jested at the expense of Mr. Cobham, but these jests have always been caused by the newspaper accounts of Mr. Cobham's adventures and never by his actual feats as a pilot, for none can admire his skill in the air or his ability as an organiser of big flights more than do the staff of THE AEROPLANE. It is therefore with genuine regret that we of this staff have heard of the mishaps which have befallen him and his companions.

Unfortunately one is not at liberty to tell the truth about the cause of his long delay at Athens. Although the details, probably in a vastly exaggerated form, can be freely circulated on the Continent of Europe, in foreign newspapers and verbally in aeronautical circles, much to the detriment of the prestige of the British Aircraft Industry one is prevented from publishing them here because they came to one's knowledge through individuals whose identity might be traced to their own disadvantage if one made the facts known.

The most one can say is that Mr. Cobham has suffered through using a combination of factors in his machine which had not hitherto been associated and that apparently the component parts of the amalgamation have not agreed with one another. Those who read THE AEROPLANE closely may have gathered that one had one's doubts from the beginning in that the record of Mr. Cobham's progress have been entitled "The Flight *towards* the Cape," and not the "London-Cape Town Flight." The facts, if made known, can in no way detract from the high reputation of British aircraft as such.

At the moment of writing Mr. Cobham and his companions are at Cairo, having left Athens on Dec. 6 and having arrived at Heliopolis on Dec. 7. This journey entailed flying 400 miles over the Mediterranean, and being out of sight of land for two hours.

To start such a flight after their experiences on the earlier part of the journey indicates the bravery of Mr. Cobham, Mr. Elliott and Mr. Emmott, for they can only have embarked on such an undertaking in a gallant endeavour to rehabilitate the reputation of British products and not for any personal advantage—their own reputations being so well established. And the measure of their gallantry may be judged by the fact, which one learns on reliable authority, that on reaching Cairo they find themselves compelled to stay there for reasons related to those which caused the delay at Athens.

One feels sure that the British Aircraft Industry as a body will agree that the interests of British manufacturers as a whole can best be served by a clear and definite and authoritative explanation of the causes of the delay, made without fear or favour. If this is not given, then every firm whose name has been associated with the flight may be blamed for the delays. So it will be far better if those firms whose products have caused the trouble will "own up"—like erring youths at school—for the sake of the rest. The best of us make mistakes at times, in design, composition, combination of parts, even in matters of words and grammar, and when one does so it is always cheaper in the end to be frank about it and publish a full explanation.

Meantime Mr. Cobham and his companions deserve to be congratulated on having reached Cairo safely. One can only hope that their further journeyings may be more like those to which Mr. Cobham has made us accustomed in the past.

C. G. G.

AN AIRCRAFT CARRIER TEST.

Sq. Ldr. R. A. de Haga Haig, on Friday, made successful un-hooking and hooking experiments with a D.H.53 from the Air Ministry's little secret airship, the R.33. Sq. Ldr. Haig disengaged the airship successfully and then flew along underneath the airship and re-engaged the trapeze, which was then wound up to the airship, the crew of which Sq. Ldr. Haig then rejoined.

Sq. Ldr. Haig deserves congratulations on his performance, but the person who designed the clumsy hooking apparatus attached to the aeroplane does not. The mechanism used in America more than two years ago in the experiments with a Sperry Messenger biplane—a larger aeroplane used from a smaller airship—is much neater and simpler.

The Air Ministry, in a sudden burst of confidence, evidently induced by that Locarno feeling, or the proximity of Christmas, has permitted the issue of photographs of R.33, the D.H.53, and Sq. Ldr. Haig.

THE NEXT SCHNEIDER TROPHY CONTEST.

Even now, six weeks after we have lost the Schneider Trophy contest, the Air Ministry people have not yet made up their minds what they are going to do about next year's contest. Meanwhile certain firms who are desirous of making a start at once are being severely handicapped by official inaction.

It is almost certain now that the next contest will take place in April, 1927, so that if only the Air Ministry will come to a decision at once we have a reasonable chance of building and testing two generations of machines and allowing our pilots time for practice.

But this constant irritating and unnecessary delay on the part of the Air Ministry will, unless something is done at once, contribute towards another fiasco. There is little chance now of getting our first machines flying by February. If only the Air Ministry people could be made to understand that there is no time to be lost if we are going to beat the Americans, then they might make up their minds and issue a statement of their intentions.—G. D.

SCHNEIDER DESIGNS.

The following letter from Mr. George Handasyde, the designer of the famous Martinsyde aeroplanes, is of particular interest at this time:—

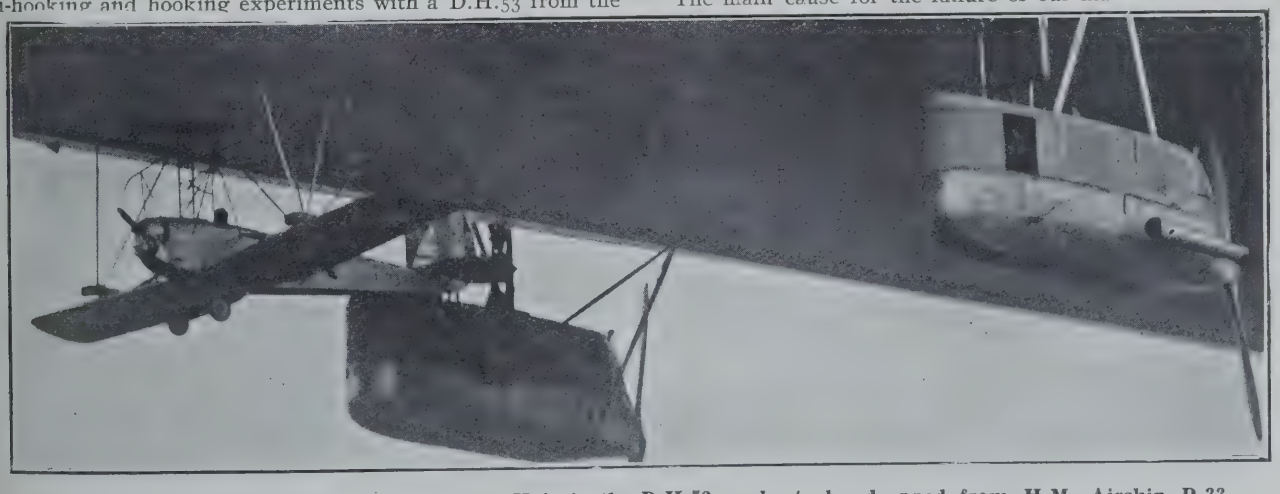
Sir,—I was interested to read in your paper, the various opinions expressed, at the monthly dinner of the Royal Aero Club and at other times, as to the cause of our failure to make a show in the Schneider Trophy Contest. I am sorry to see that there is a strong tendency to lay a lot of blame on the engine constructor and to make out that our engines have too large a frontal area, etc. But I have not as yet noticed anyone complain about the poor attempt made by the aircraft constructors to get decent lines in their machines.

No doubt the various bits in themselves were very fine things in stream-lines. But when lumped together collectively to form a machine they produced a surface of semi-detached fairings with a remarkable likeness to the contour of the Downs.

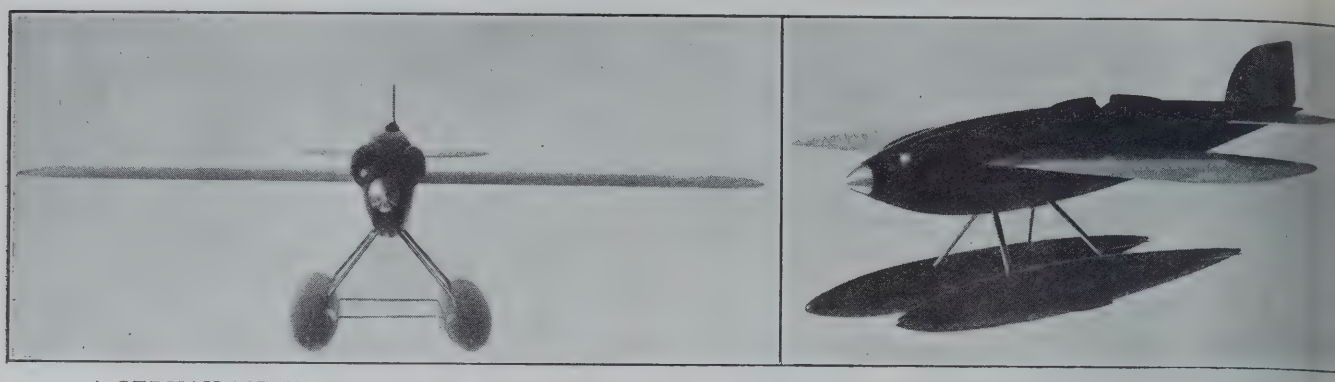
The French "Bernard" monoplane was far and away better in lines than anything we sent to America. And when it is remembered that its engine gave considerably less than 600 h.p. and that its frontal area does not differ much from that of the Napier, its remarkable speed must have been got from somewhere, even allowing that the landing speed was higher—it is, however, doubtful whether it was.

Though the Supermarine was a very clean and smooth job and a credit to her constructors, her lines were, in the light of my experience, not what they might have been. And there were several features in her shape that I know to be distinctly bad. This undoubtedly is due to lack of experimental flying—tunnel experiments are absolutely useless for data of this kind.

The main cause for the failure of our machines falls under



DROPPING THE PILOT.—Sq. Ldr. de Haga Haig in the D.H.53 ready to be dropped from H.M. Airship R.33.



A GERMAN SCHNEIDER MODEL.—A wind-tunnel model for a racing seaplane with a Curtiss D.12 engine designed by Dr. Ingenieur Dornier.

two heads only, lack of support, which means also lack of cash, and lack of full-sized experimental flying, which means also lack of knowledge. Our engines are all right, and good enough as they are to regain the Trophy.

(Signed) G. H. Handasyde.

AIR MINISTRY GADGETRY.

Most people in these days know how the performances of our war aeroplanes are being steadily ruined by the Air Ministry's experts. The numbers of quite unnecessary gadgets, or at any rate of gadgets which could be made to do the same thing for very much less weight and complication, are immense. A story from a Service Squadron of the R.A.F. about one of these Air Ministry brain storms is worth telling.

Some bright intellect conceived the idea that it would be a good thing if the pilot's seats on aeroplanes were made adjustable to suit either tall or short pilots. To this end in a certain aeroplane the seat was mounted on some kind of telescopic arrangement operated by a lever, about as big as the brake lever of a pre-war motor-car, which raises or lowers the seat at the will of the pilot.

On many Service aeroplanes a very similar lever known commonly as the " cheese-cutter " is used to alter the angle of the tail plane, so as to adjust the balance of the machine if it happens to be nose-heavy or tail-heavy, according to the load that it is carrying. The other day a small pilot got into one of these machines and, when he got into the air, finding that the balance of the machine needed adjusting threw what he thought to be the cheese-cutter forward. Unfortunately he had operated the seat-adjustment lever, and he promptly disappeared entirely inside the fuselage, much to the astonishment of his passenger.

Fortunately he was at such a height that he was able to discover what had happened and to regain proper control of the machine without performing a fatal nose-dive or other unpleasant evolution.

Which recalls an entirely unreliable rumour about the predicament of the pilot of a deck-flying torpedo machine which was fitted with an undercarriage designed to be dropped in case the machine had to alight in the sea. The story has it that, becoming confused among the mass of Air Ministry gadgets, he dropped his undercarriage and then attempted to do a perfect deck-landing on top of the torpedo, which fortunately was not of the explosive variety,—or else was one of the latest products of *H.M.S. Vernon*.

Another gadget story which really is authentic concerns the wonderful short-wave wireless system beloved of the Air Ministry wireless experts.

For some technical reason or other the wireless experts insist on every bit of metal in a machine equipped for short-wave radio-telephony being bonded together by bits of wire. The result is that many man-weeks of time and Heaven knows how many pounds in money and weight are added to the machine.

Wire filaments run all the way round the wings from clip to clip and hinge to hinge, and there are bits of wire all over the fuselage and all sorts of funny little brass screws and soldered joints and things. And then apparently all this metallic system is coupled up to the real aerial which runs from the undercarriage to the tail-skid or from the upper plane to the rudder-post.

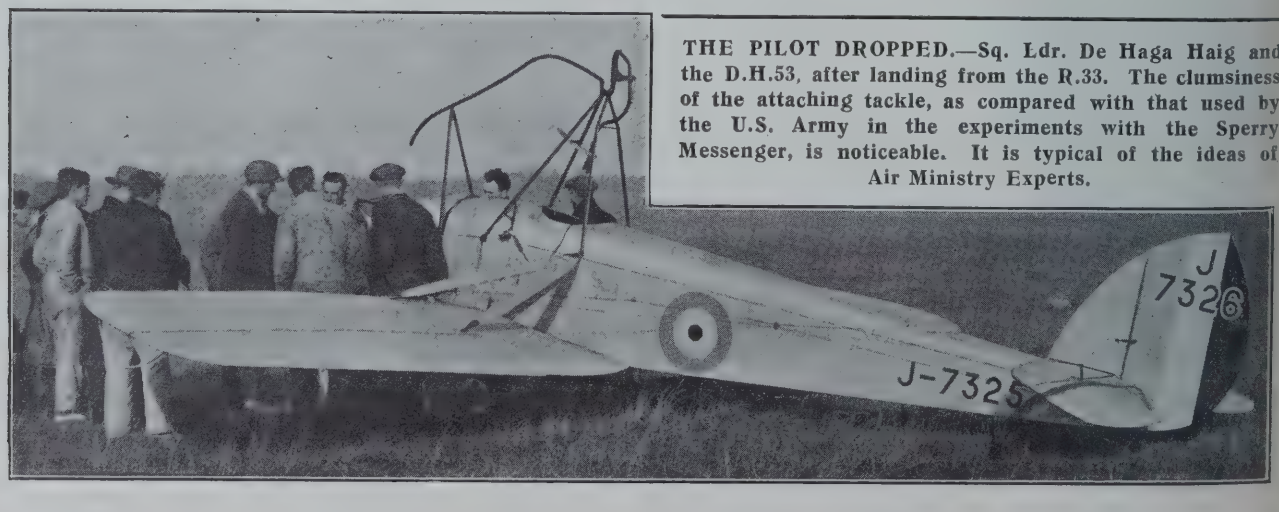
So far as one can gather from pilots who have tried to use the thing the messages received are rather like bad broadcasting received on a ten-valve set suffering from interference simultaneously from Morsing and atmospherics. But the other day a machine went up and the pilot discovered that the results were much less bad than usual.

After he had landed and reported the improvement the machine was carefully examined and it was found that some of the bonding had come unstuck or broken in such a way that the whole lot was cut out of circuit and the radio-telephone apparatus was working solely on the ordinary aerial wires.

So now the pilots want to know why all the bonding with its consequent added weight and added expense and added delay in delivery of machines is necessary at all.

Presumably the R/T experts are really just about as practical as the other electrical experts who added something like seventy pounds weight to a machine by insisting on fitting cable with heavy rubber insulation all the way along the wings and fuselage, for the wing-tip and tail lights, because ordinary electric light flex was in the habit of cutting through where it passed through holes in wing ribs or came in contact with other parts of the machine. It never seemed to strike them that the simple thing to do was to wrap the flex in rubber and jamb the wrapped part tight in metal eyelets where it passed through parts of the machine.

When one sees the way in which perfectly good aeroplanes are ruined as flying machines, and when one sees how ordinarily intelligent pilots are irritated and befuddled by Air Ministry gadgetry one does begin to appreciate the need for properly trained engineers in the Royal Air Force.



THE PILOT DROPPED.—Sq. Ldr. De Haga Haig and the D.H.53, after landing from the R.33. The clumsiness of the attaching tackle, as compared with that used by the U.S. Army in the experiments with the Sperry Messenger, is noticeable. It is typical of the ideas of Air Ministry Experts.

THE ROYAL AIR FORCE.

The London Gazette

Dec. 1.

GENERAL DUTIES BRANCH.—The following are granted S.S. comns. as Plt. Offs. on probation, with effect from and with seniority of, Nov. 28:—C. A. Anderson, J. L. Adams, R. Benham, T. B. Byrne, J. F. Dowdeswell, A. E. G. Eccleston, L. G. Gray (Capt., Indian Army, retd.), D. V. Ivins, H. J. J. Mumford-Mathews, F. J. Parker, J. G. Parkin, L. C. Phillips, L. H. Smith, E. G. C. Stokes, R. J. Stone (Sec. Lt., Norfolk Regt., T.A.), R. O. O. Taylor, E. L. Wilson, R. H. Winn, W. G. Woolliams.

The following Plt. Offs. on probation are confirmed in rank:—D. S. E. Vines (Nov. 6); C. Heard-White (Nov. 14) (substituted for notification in *Gazette* of Oct. 6).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—J. A. P. A. Yearsley (May 15); S. E. Bulloch (Aug. 14); W. V. R. Nicholl (Nov. 15).

Flt. Lt. J. W. Young, M.B.E., takes rank and precedence as if his appointment as Flt. Lt. bore date July 1, his name to appear immediately below that of Flt. Lt. E. J. Kingston-McCloughry, D.S.O., D.F.C., on the gradation list. Reduction to take effect from Sept. 22.

Flg. Off. A. E. T. Bruce is transferred to the Reserve, Class A (Dec. 2).

The notification in the *Gazette* of Nov. 3 concerning Plt. Off. on probation F. Sisson is cancelled.

STORES BRANCH.—The following Capts., Corps of Military Accountants, Army, are granted perm. comns. as Flg. Offs. on probation with effect from and with seniority of Nov. 24:—L. Horwood, M.C., F. B. Ludlow, O.B.E., M.C., L. L. Bray, P. Alderson, H. D. Giblett.

The following are transferred to the Stores Branch on probation in the ranks stated (Nov. 24):—FLT. LT.—L. A. K. Butt. FLG. OFFS.—B. E. Essex, H. J. Hunter, W. F. Langdon.

ACCOUNTANT BRANCH.—Plt. Off. on probation S. C. George is confirmed in rank, and is promoted to the rank of Flg. Off. with effect from Dec. 3, and with seniority of Nov. 10

MEDICAL BRANCH.—Flt. Lt. W. F. Wilson, M.C., M.B., is promoted to the rank of Sq. Ldr. (Nov. 25).

RESERVE OF AIR FORCE OFFICERS.—GENERAL DUTIES BRANCH: T. Salway is granted a comn. in Class A.A. as a Plt. Off. on probation (Nov. 16); R. McLaughlin is granted a comn. in the Special Reserve as a Flg. Off. on probation (Dec. 1).

The following Flg. Offs. are transferred from Class A to Class C:—G. H. Wenn (May 18); C. E. F. Arthur (Oct. 1); A. J. H. Taylor (Oct. 24).

Appointments.

Week ending Dec. 8.

GENERAL DUTIES BRANCH.—Wing Commander W. L. Welsh, D.S.C., D.F.C., to R.A.F. Depot pending disposal on transfer to Home Estab., 17/11.

Squadron Leaders A. J. Currie, to R.A.F. Depot on transfer to Home Estab., 27/11. F. P. Don, to Air Ministry, 1/12. A. D. Pryor, to R.A.F. Depot, 26/11.

Flight Lieutenants A. W. Clemson, O.B.E., D.S.O., to No. 3 Group H.Q., Spittlegate, 1/12. W. J. Daddo-Langlois, to No. 480 Flight, Calshot, 9/12. M. B. Frew, D.S.O., M.C., A.F.C., to Armament and Gunnery School, Eastchurch, on transfer to Home Estab., 16/12. G. E. Gibbs, to No. 25 Sqdn., Hawkinge, 14/12. E. J. Cuckney, D.S.C., to R.A.F. Depot on transfer to Home Estab., 30/10. N. H. Jenkins, O.B.E., D.F.C., D.S.M., to No. 30 Sqdn., Iraq, 9/11. E. B. Mason, to Aden Flight, 19/11.

Flying Officers H. K. Goode, D.S.O., D.F.C., to Aden Flight, 19/11. R. L. Edward, to No. 1 F.T.S., Netheravon, on transfer to Home Estab., 10/12. S. F. Cole, to R.A.F. Base, Calshot, 3/11. (Hon. Flt. Lt.) H. R. B. Howell, to R.A.F. Base, Gosport, 3/11. A. A. Jones, to Cairo-Cape Flight, Northolt, 30/11. C. H. Ratcliffe, to No. 99 Sqdn., Bircham Newton, 3/12. A. C. Addams, to No. 41 Sqdn., Northolt, 7/12. E. A. McKinley-Hay, to No. 502 Sqdn., Aldergrove, 11/12. J. F. F. Pain, to No. 1 F.T.S., Netheravon, on appointment to a Temp. Comn. on being seconded from the Army, 28/11.

Pilot Officers.—The undermentioned Plt. Offs. are all posted to No. 1 F.T.S., Netheravon, on appointment to S.S. Comns. (on probation) with effect from 28/11:—C. A. Anderson, J. L. Adams, R. Benham, T. B. Byrne, J. F. Dowdeswell, A. E. G. Eccleston, L. G. Gray, D. V. Ivins, H. J. J. Mumford-Mathews, F. J. Parker, J. G. Parkin, L. C. Phillips, L. H. Smith, E. G. C. Stokes, R. J. Stone, R. O. O. Taylor, E. L. Wilson, R. H. Winn, W. G. Woolliams, J. S. Georgeson, to No. 502 Sqdn., Aldergrove, 11/12.

MEDICAL BRANCH.—Flight Lieutenant (Hon. Sq. Ldr.) E. Brown, to R.A.F. Depot, 25/11. E. G. Howell, to E.R.D., Egypt, instead of to Aircraft Depot as previously notified, 15/10. Flying Officers W. D. McKeown, M.B., to R.A.F. Depot, 1/12. E. A. Aslett and H. M. Levy, to Research Laboratory and M.O.S. of I., Hampstead, on appointment to S.S. Comns. for short course, 1/12.

STORES BRANCH.—Squadron Leader R. W. Thomas, O.B.E., to Air Ministry, 20/12. Flight Lieutenants W. Sutherland, M.B.E., to R.A.F. Training Base, Leuchars, 9/11. L. A. K. Butt, to No. 1 S.D., Kidbrooke, 24/11. Flying Officers B. E. Essex, to No. 1 S.D., Kidbrooke, 24/11. R. D. Lambert, to No. 1 S.D., Kidbrooke, 24/11. L. Horwood, M.C., F. B. Ludlow, O.B.E., M.C., L. L. Bray, P. Alderson and H. D. Giblett, to No. 1 S.D., Kidbrooke, on appointment to Perm. Comns. (on probation), 24/11. L. R. Peirce, to No. 1 S.D., Kidbrooke, 25/11. S. D. Dennis, to H.Q., Coastal Area, 3/11. R. A. Dolton, to R.A.F. Depot on transfer to Home Estab., 25/11. Pilot Officers E. H. Broad, to No. 111 Sqdn., Duxford, 17/11. E. G. M. Charleson, to No. 2 Sqdn., Manston, 17/11 R. H. Clay, to No. 25 Sqdn., Hawkinge, 17/11. D. J. Divett, to No. 99 Sqdn., Bircham Newton, 17/11. G. H. Doveton, to No. 13 Sqdn., Andover, 17/11. F. W. Felgate, to No. 23 Sqdn., Henlow, 17/11. E. J. Fishenden, to No. Sqdn., Manston, 17/11. P. J. Mote, to A.A.E.E., Martlesham Heath, 17/11. P. P. S. Rickard, to No. 32 Sqdn., Kenley, 17/11. L. Taylor, to M.T. Repair Depot, Shrewsbury, 17/11. C. P. Marshall, to H.Q., Cranwell, 16/11.

ACCOUNTANT BRANCH.—Flight Lieutenant R. M. Grundy, to C.F.S., Upavon, on transfer to Home Estab., 1/12. Pilot Officer R. W. Collinson, to No. 99 Sqdn., Bircham Newton, 15/12.

The I.G.S. Medal.

The Air Ministry announces:—

His Majesty the King has been graciously pleased to command that the India General Service Medal, 1908, in silver, with clasp "Waziristan, 1921-24," shall be granted to personnel of the Royal Air Force who took part with the military forces in the operations in Waziristan between Dec. 21, 1921, and Mar. 31, 1924.

Provided that the claims are approved by the Air Council the medal and clasp will be granted to all officers and airmen who were placed under the orders of the Officers Commanding, Royal Air Force, Waziristan, for duty, either in the air or on the ground, within the area of the operations, comprising North and South Waziristan, Bannu, Dera Ismail Khan Civil Districts, and that portion of the Mainwali District, which lies west of the River Indus, and the military posts of Mari Indus and Darya Khan, east of the River Indus, between Dec. 21, 1921, and Mar. 31, 1924, both dates inclusive. Those already entitled to, or in possession of, the medal, will receive the clasp only.

Officers no longer serving may obtain the necessary form of application from the Secretary, Air Ministry, Adastral House, Kingsway, London, W.C.2, and airmen no longer serving, from the Officer i/c Records, Royal Air Force, Ruislip, Uxbridge, Middlesex. The forms, when completed, should be forwarded to the Secretary, Air Ministry.

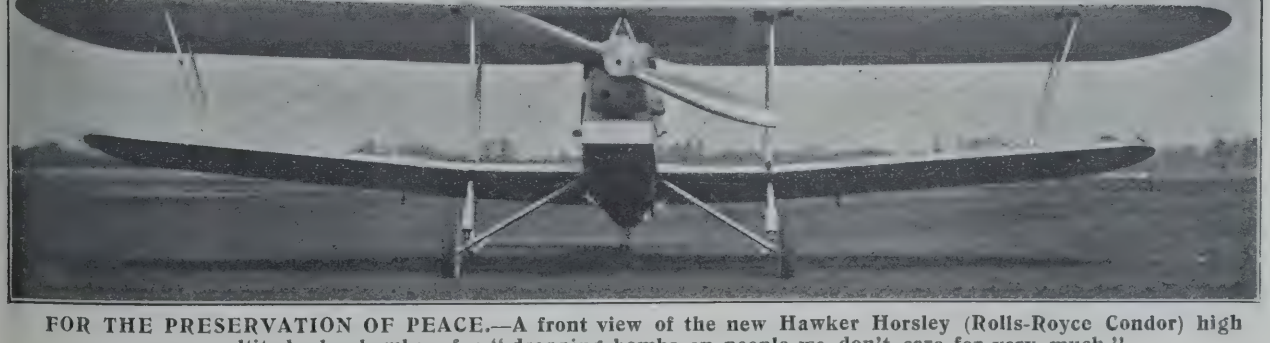
Mosul.

Air Marshal Sir John Salmond, K.C.B., C.M.G., C.V.O., D.S.O., A.D.C., arrived at Geneva on Dec. 6, to join the British delegation for the meeting of the League of Nations Council which opens there on Dec. 8.

Seconded Army Officers.

The Times of Dec. 8 states:—

An Army Council Instruction states that officers already holding permanent commissions in the Regular Army on Sept. 30, 1925, who are seconded for duty with the R.A.F. on or after Oct. 1, 1925, will receive pay at the R.A.F. rates in force prior to that date. The rates in question are:—Flying officer, standard rate, £1 3s., current rate, £1 1s. 8d.; flying officer, after two years in the substantive rank, £1 5s. and £1 3s. respectively; flight lieutenant, £1 9s. and £1 7s. 4d. respectively. If, however, any such officer is appointed to a permanent commission in the R.A.F., he will be eligible only for the new R.A.F. rates of pay and half-pay from the date he is appointed to a permanent commission.



FOR THE PRESERVATION OF PEACE.—A front view of the new Hawker Horsley (Rolls-Royce Condor) high altitude day bomber, for "dropping bombs on people we don't care for very much."

The Air Minister on Disarmament.

Sir Samuel Hoare, Secretary of State for Air, at a meeting of the first conference of London Women Unionists at Caxton Hall on Dec. 3, said, with reference to the signing of the Treaties of Locarno, that such an event made one proud of one's country. It was for us to make the most of the new atmosphere which had been created in Europe. It was possible now to think seriously about the reduction of armaments.

Here in England we had never made any secret of our views on the urgent necessity of decreasing that yearly expenditure. With regard to the Air Force, at the end of the war England had the strongest Air Force in the world, more than 300,000 officers and men. In order to show our belief in the need for the reduction of armaments we had reduced that Air Force to the lowest possible point. Indeed, we had gone too far, and since that time we had been building it up again to some extent. But although London was the most vulnerable capital to air attack of any of the great capitals of the world, although this country needed a strong Air Force as much as any country in the world, we had reduced our Air Force to such a point that it was only fourth in the list of the great Air Powers of the world.

He said that to show them how England had attempted during the last few years to prove to the world the sincerity of her belief in the need for reducing armaments to the lowest possible point. What better proof could we give to the world than the course we had adopted with our own Navy, Army and Air Force?

So far as the Government was concerned, they would always be ready to take part in any practical and reasonable movement for the general reduction of armaments.

R.A.F. SPORTS AND PASTIMES.

The W.R.A.F. Fair.

A Christmas Fair was held at St. Andrew's Hall, Victoria, on Dec. 5, by the Old Comrades' Association of the W.R.A.F., in aid of the Association's Benevolent Fund.

The Fair was opened by the Lady Maud Hoare, who made a charming speech, in the course of which she said that she was delighted to meet and make friends with the W.R.A.F. Her motto had always been to the effect that a person who ceased to be a friend had never been a friend. She made a few more apposite remarks and declared the Fair open.

Dame Helen Gwynne-Vaughan proposed a vote of thanks to Lady Maud Hoare, which was carried with enthusiasm.

An excellent little band (who very generously gave their services) played during the afternoon and evening. Their name and address, a useful thing to make a note of, is the Miami Four, 1, Redbourne Avenue, Finchley.

The Fair realised about £160.

Cross-Country.

The R.A.F. (Uxbridge) won the Middlesex Cross-Country Championship at Ruislip on Dec. 5, with 77 points against the 122 of North London Harriers and 129 of Hampstead Harriers.

There were 244 runners, representing 22 teams.

In 1924 the R.A.F. finished first, but one of the runners was declared ineligible, with the result that Highgate Harriers won. On Saturday the Uxbridge team provided the first three men home, and, though their sixth representative lost a little ground in the last circuit, the early bunching was sufficient to make their success fairly certain.

The individual winner was AC.2. F. W. Turner, and in repeating his performance of last season he ran in almost the same manner, breaking away at the start to get the lead, which enabled him to hold a good advantage at three-quarters of a mile, and eventually to win the race fairly comfortably.

The first three were :—1, AC.2. F. W. Turner, R.A.F. (Uxbridge), 36 mins. 17 secs.; 2, L-AC. Ferris, R.A.F. (Uxbridge), 37 mins. 35 secs.; 3, L-AC. G. W. Goodall, R.A.F. (Uxbridge), 37 mins. 38 secs.

Boxing.

The R.A.F. Boxing Association's eighth annual novices' competitions took place at Henlow on Dec. 2 and 3. Teams were entered from nine stations.

At the start of the second day's boxing No. 1 Group and No. 3 Group tied for the lead in the officers' section, and amongst the other ranks No. 7 Group led with 24 points.

The results were :—

OFFICERS.

Bantam-weight.—Final Bout.—Flg. Off. Stewart (No. 6 Group) beat Plt. Off. Whitta (No. 3 Group) in the second round.

Feather-weight.—Final Bout.—Plt. Off Watkins (No. 3 Group) beat Flg. Off. Robinson (No. 1 Group) on points.

Light-weight.—Final Bout.—Flg. Off. Georgeson (No. 1 Group) beat Plt. Off. Loughnan (No. 7 Group) on points.

Heavy-weight.—Final Bout.—Flg. Off. Brodie (No. 7 Group) beat Flg. Off. Sterling-Webb (Henlow) on points.

Welter-weight.—Semi-Final Bout.—Plt. Off. Frost (No. 1 Group) beat Plt. Off. Pavin (Uxbridge) on points; Flg. Off. Arbuthnot (No. 3 Group) beat Flg. Off. O'Sullivan (Henlow) on points. Final Bout.—Plt. Off. Frost (No. 1 Group) beat Flg. Off Arbuthnot (No. 3 Group) on points.

Middle-weight.—Final Bout.—Flg. Off. Hale-Munro (No. 6 Group) beat Plt. Off. Merritt (No. 3 Group) in the second round.

Light-heavy-weight.—Final Bout.—Plt. Off. Thorn (No. 3 Group) beat Flt. Lt. Spackman (No. 6 Group) in the third round, the referee stopping the fight.

OTHER RANKS.

Middle-weight.—Semi-final Bout.—AC. Walker (No. 1 Group) beat L-AC. Hockley (Shrewsbury) on points; AC. Bushnell-Wye (Henlow) beat AC. Sully (No. 6 Group) on points.

Light-heavy-weight.—Semi-final Bout.—AC. Gates (Shrewsbury) beat AC. Mather (Halton) on points; AC. Hitchen (Uxbridge) knocked out AC. Nash (No. 6 Group) in the first round.

Heavy-weight.—Semi-final Bout.—AC. Watts (Henlow) knocked out L-AC. Mollett (No. 6 Group) in the first minute; AC. Dean (No. 7 Group) beat AC. Walter (No. 7 Group) on points.

TEAM PLACINGS.

Officers.—No. 3 Group, 16 points; No. 1 Group, 14 points; No. 6 Group, 12 points; No. 7 Group, 6 points; Henlow, 6 points; Uxbridge, 2 points.

Airmen.—*Henlow*, 34 points; No. 7 Group, 33 points; Uxbridge, 29 points; Shrewsbury, 26 points; Halton, 24 points; Cranwell, 23 points; No. 1 Group, 21 points; No. 6 Group, 19 points; No. 3 Group, 11 points.

Boxing in Iraq.

The Boxing Season of the R.A.F. (Iraq) Boxing Association was opened at Hinaidi on November 13 and 14 with the Novices' Inter-unit Team Championships—twelve units entered teams and 53 bouts were staged. Units had previously held their own eliminating competitions.

The boxing was of a considerably higher standard than is usually associated with a novices' competition and many of the competitors bore evidence of having been well coached in the finer points of boxing, and, what is of equal importance, entered the ring fit. The scores shown elsewhere point to the extreme keenness of the fighting, the destination of the championship cup being decided by the last fight of the evening.

Details of the boxing are as follows :—

SEMI-FINALS AND FINALS.

Fly-weights.—AC. Johnson, No. 70 (B) Sqdn., met AC. Cavana, "A" Sqdn., I.A.D., in the final for this weight, and although Johnson began well, Cavana asserted himself and won on points.

Bantam-weights.—AC. Ross, No. 70 (B) Sqdn., and AC. Codling, No. 84 (B) Sqdn., met in the final. Ross gave away considerable reach, but at the end of the bout was given the decision on points. A good fight.

Light-weights.—In the semi-finals, AC. Upfield, "A" Sqdn., I.A.D., fought Cpl. Ryell, No. 6 A.C.C. Upfield gained the verdict on points. AC. Belcher, Stores Depot, Basrah, and AC. Dickenson, No. 6 A.C.C., were the other semi-finalists, Belcher getting the verdict. The final saw a rare exhibition of good, clean hitting and sparring and the bout was a credit to the opponents. Belcher won on points. Upfield was awarded half a point as a good loser.

Feather-weights.—The semi-finals saw AC. Clarke, No. 70 (B) Sqdn., overcome L-AC. Hickling, Stores Depot, Basrah, on points, and A.C. Witham, "A" Sqdn. I.A.D., beat AC. Giblin, "D" Sqdn. I.A.D. AC. Witham in the final proved the better man in a good fight.

Middle-weights.—L-AC. Lyford, No. 5 A.C.C., fought AC. Parkinson, "A" Sqdn. I.A.D., in the semi-final. Lyford has improved considerably since last boxing season and showed to considerable advantage; Lyford won on points. AC. Casey, "C" Sqdn. I.A.D., and AC. Boulton, No. 6 A.C.C., were the other finalists. Casey beat his man with a neat knock-out in the second round. The final went three rounds, with very little between them. Casey won on points.

Welter-weights.—In the semi-finals AC. Biguir, No. 8 (B) Sqdn., met AC. Cummings, Stores Depot, Basrah. This bout provided one of the best fights of the evening, both men using every endeavour to get into the final. It was necessary to fight an extra round before a decision could be given to Cummings on points. In the other semi-final, Cpl. Wilson, "C" Sqdn. I.A.D., fought L-AC. Campbell, "D" Sqdn. I.A.D. Wilson showed superiority and scored freely. Wilson gained the decision. In the final Wilson beat Cummings in the first round with a knock-out.

Light-heavy-weights.—L-AC. Parfitt, No. 84 (B) Sqdn., met AC. Collard, "D" Sqdn. I.A.D., in the final. In the latter part of the second round Parfitt delivered the knock-out.

Heavy-weights.—AC. Green, "D" Sqdn. I.A.D., and AC. Phillips, Stores Depot, Basrah, between them decided the final. Green was given the verdict on points.

The scores of the Teams in points at the conclusion of the meeting were as follows :—"A" Sqdn., I.A.D., 31; Stores Depot, Basrah, 30½; "D" Sqdn., I.A.D., 24; "B" Sqdn., I.A.D., 22; No. 70 (B) Sqdn., 20; "C" Sqdn., I.A.D., 19½; No. 84 (B) Sqdn., 18; No. 5 A.C.C., 12; No. 6 A.C.C., 10½; No. 8 (B) Sqdn., 5; No. 45 (B) Sqdn., 3; No. 55 (B) Sqdn., 1.

Group Capt. A. G. Board, C.M.G., D.S.O., Station Commandant, Hinaidi, at the conclusion of the boxing, in calling upon the Air Officer Commanding to present the prizes, expressed regret that owing to injury the special contests which had been arranged could not take place.

Before presenting the prizes, the Air Officer Commanding British Forces in Iraq—Air Vice-Marshal Sir J. F. A. Higgins, K.B.E., C.B., D.S.O., A.F.C., in a short speech, said he felt everybody would agree with him that the arrangements which had been made for the boxing meeting reflected great credit on all concerned. Whenever he attended these meetings, he had to admit that there did not appear to be anything which could be improved upon. Continuing, he referred to the good and keen boxing which had taken place that evening, and expressed the hope that in the next team events some of the representatives would be officers.

It was very interesting to see that the result of the Team Championships was in doubt up to the last fight, and that this particular fight had proved so very good. He congratulated "A" Sqdn., Iraq Aircraft Depot, on winning by a very small margin, and he also congratulated the Stores Depot, Basrah, who lost the Championship by only half a point.

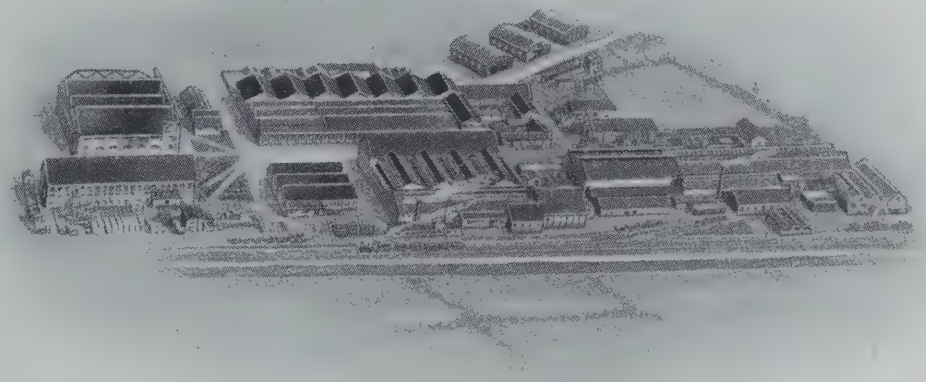
The Air Officer Commanding then presented the prizes.

Continuing after the presentations, the Air Officer Commanding referred to the great interest taken by Group Capt. Board in boxing. During his Command at Hinaidi this officer had superintended and

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presided over all boxing and it was due to his efforts and encouragement, to a very great extent, that we had such good boxing in the Royal Air Force.

"It was most unfortunate that this would be the last time that Group Capt. Board would be here at one of these contests, and he wanted them to give him three cheers just to show how much they appreciated, not only the extreme interest which he had taken in boxing, but in all sports at Hinaidi"

The audience, after giving three rousing cheers, led by the A.O.C., continually and vociferously demanded a speech by Group Capt. Board, who then expressed his thanks for the cheers, which he said he felt were quite undeserved.

The following were the officials of the competitions:—Referees: Group Capt. A. G. Board, C.M.G., D.S.O., Capt. Leathem, M.C., Flt. Lt. D. J. W. Brady, D.S.M., Flt. Lt. A. W. Turner, D.C.M.

Judges: Flt. Lt. J. D. Leahy, M.C., M.B., B.A., Flg. Off. F. E. C. Benstead, Flg. Off. L. H. Stewart, Lt. R. H. H. Osborne, Lt. E. G. Steele, M.C.

Timekeepers: The Rev. A. McHardy, M.C., M.A., the Rev. J. H. P. Still, B.A.

Medical Officer: Flt. Lt. T. McClurkin, M.B., D.P.H.

Register Keepers and Press Steward: Flt. Lt. T. S. Ivens, S-M. H. Wood, Cpl. G. H. Bell.

It is worthy to mention that at the distribution of prizes Sjt. Allen, of "A" Sqdn., I.A.D., was awarded a prize as a best loser. Sjt. Allen was defeated in the preliminary competitions on the 13th.

A CANADIAN TECHNICAL COMMITTEE.

There has been formed in Canada during the past season a committee to be known as the Technical Advisory Committee on Aeronautics. The members, representing both Government and commercial interests, meet to make recommendations to the Civil and Military Authorities to further the development of aviation in Canada.

The members are as follows: Lieut.-Col. R. H. Mulock, O.B.E., D.S.O., President; Ellwood Wilson, representing aircraft operating companies; Professor C. M. McKergow, representing the mechanical engineering faculty; Professor J. H. Parkin, representing the aeronautical engineering faculty; Wing Cdr. E. W. Stedman, Department of National Defence—temporary Secretary.

A USEFUL PARACHUTE JUMP.

One of the best parachute jumps on record was made on November 14, 1925, by Flt. Lt. Carter, Royal Canadian Air Force, at the High River Aerodrome, Alberta. Piloted by Flg. Off. Dickens in a D.H.4 with 360 h.p. Rolls-Royce Eagle engine, Flt. Lt. Carter ascended to a height of 20,000 feet and there let himself loose in a parachute which, judging by the descriptions and photographs, is one of the standard Irvings, made in the U.S.A., to which certain Members of Parliament in this country seem to have so much objection.

As showing the effect of rarified atmosphere in relation to the area of parachutes, and consequently in relation to the wings of aeroplanes, the statement is made that for the first part of his descent Flt. Lt. Carter dropped at the rate of 1,400 feet per minute as indicated on a recording barograph. Lower down the speed of descent was reduced to between 800 and 900 feet per minute. And judging by the fact that according to the report Flt. Lt. Carter said that he had never made a better landing with a parachute it is to be assumed that his rate of descent was not more than 500 feet per minute.

He left the machine while directly over High River Aerodrome but landed six miles away, close to the edge of Frankburg Lake, after having been in the air for 17 minutes from the time when he left the machine.

He reported that in the course of the descent he met various violent bumps similar to those felt when flying in an aeroplane. These bumps caused serious oscillations of the parachute, turning it into a species of violent pendulum. On three occasions some unusual disturbances in the air caused the parachute to gyrate as if caught in a whirlwind.

Flt. Lt. Carter came to Europe during the War 1914-18 as a private in B Company of the 31st Canadian Battalion. He served with his unit until the attack on Vimy Ridge, for which he won the Military Medal. He then transferred to the R.F.C. and was with the famous No. 60 Squadron for the six months before the Armistice. He was demobilised on returning home to Calgary and joined the R.C.A.F. when the High River Station was established in 1921. He has recently been in command of the High River Forest Patrol in the absence of Sq. Ldr. A. L. Cuffe.

It is hoped that the actual barograph figures for this descent will soon be available, as they may conceivably be of considerable use to aeroplane designers both in their relation to wing design for high altitude flying and also for the supercharging of engines.

ARMY CO-OPERATION.

In the course of a lecture on "Land Warfare," at University College on Dec. 3, Major-Gen. Sir Edmund Ironside, Commandant of the Staff College Camberley, as reported in *The Times*, said that the Army at present suffered the grave disability of being dependent on another Service altogether for their reconnaissance and for observation for the artillery. The observer in the aeroplane was not a trained artilleryman. The Army in general, and the artillery in particular, wanted men who could not only go up and observe and report on a situation, but who could also form military judgments from what they saw as to the best line of action.

The two Services were drawing apart from each other, rather than together. It was, perhaps, only natural, because the Air Ministry was thinking of the air-bombing war, and not of reconnaissance in the interests of ground troops.

In the event of a future war, the Air Ministry, however well-intentioned they might be, would use the best men of their Service for what was in their eyes the main purpose, and the Army would be left without eyes. The maintaining of these two separate services checked the proper evolution of the Army.

He did not share in the widespread belief that any future great war would be finished in a few days by the demoralisation of civilians by air action. He thought there would be at first heavy casualties in the air, and both air forces would quickly become so weakened that they could not go on bombing civilians long.

He urged the need of a single direction of the operations in any future war, whether by a soldier or an airman, and even by one Ministry at home. They also needed a General Staff, he said. If they could get one staff, trained in one place, and thinking of war in one way, they would get proper evolution.

THE LIGHT AEROPLANE CLUBS.

The London Aeroplane Club.

Owing to the fog there was practically only one day's flying during the week, i.e., Monday, Nov. 30.

The total flying time for the week was 7 hours 50 minutes.

The following members had flying instruction:—Miss O'Brien, R. C. Brighten, Sir John Rhodes, Col. Turner, A. R. Ogston, W. Hay, R. V. Banks, A. Lees, R. Malcolm, S. O. Bradshaw, J. S. M. Michie.

The following members flew solus:—N. J. Hulbert, Col. Turner

The members have formed a Dance Committee and an Inaugural Dance will be held at the Suffolk Galleries, Suffolk Street, W.1, on Wednesday, Jan. 13, 1926, under the patronage of Sir Philip Sassoon, the Under-Secretary of State for Air. Tickets will cost 10s. 6d. including buffet refreshments.

Tickets may be obtained from Capt. F. G. M. Sparks at Stag Lane Aerodrome; the Secretary, The Royal Aero Club, 3, Clifford Street, London, W.1., or the Hon. Sec., The Dance Committee, Mrs. Eliott-Lynn, The Ladies' Athenæum Club, 19, Stratford Place, W.1. The proceeds will be devoted to the furnishing of a Club-house on the Aerodrome.

The Lancashire Aero Club.

Throughout the week weather conditions have been bad. Hard frost accompanied by fog made flying out of the question until Friday. The total flying was 5¾ hours.

Last week-end, too late for inclusion in last week's report, Mr. H. Stern turned "I.R" on its back. This occurred in attempting to take-off "up the hill" and was due to a burst tyre occasioned by the bad state of the frozen ground. The machine turned over very gently and the damage was even less than to "LV" a week or two ago.

The uncharitable suggest that Mr. Stern's bad luck was due to the fact that he was attired in a common or garden lounge suit instead of one of his golf-cum-ping-pong outfits that we have come to love so well. Another theory is that a well-known householder in an adjacent desirable residence in the neighbourhood of Bramhall spends his evenings besprinkling the aerodrome with "Keatings"—resulting in the aforementioned havoc among the Moths.

On Friday the fog lifted long enough for Mr. Cantrill to test "LV," which had been waiting some days after the recent repairs.

On Saturday and Sunday a little dual instruction was possible, Messrs. Cantrill and Scholes taking the following:—Messrs. Good-



AT THE LONDON AEROPLANE CLUB.—The Club Hangar and the two De Havilland Moths.

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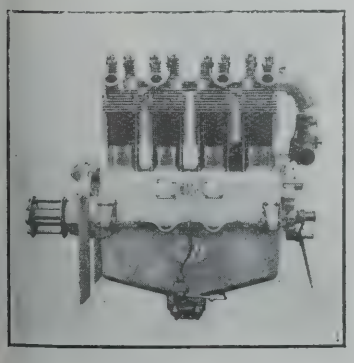
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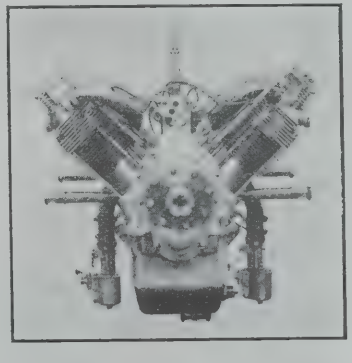
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year, Handy, Annable, Williams, Wilkinson, Parker, Colley, McNair. Messrs. Goodyear and Lacayo did short solo flights. Total flying was 5½ hours.

The repairs to "LR" are only likely to take a few days, after which we hope to be free from crashery for a time, feeling that we have had our ration.

Like Foot and Mouth disease, the "Hush-hush" spirit is always with us, and there is considerable mystery attached to the Chairman's visit to Town this week-end In accordance with the best "Hush-hush" principles the full details will no doubt leak out.

THE NEWCASTLE-UPON-TYNE AERO CLUB.

Flying report for week ending Dec. 6, 1925:—Flying times—G-EBLX, 9 hrs. 4 mins.; G-EBLY, 7 hrs. 4 mins. Total time, 16 hrs. 8 mins.

Dual flying under Major Packman:—Messrs. J. Bell (30 mins.), J. M. Campbell (32 mins.), J. D. Irving (4 hrs. 49 mins.), C. B. Marshall (30 mins.), L. Smith (30 mins.), R. N. Thompson (65 mins.), G. H. Twine (30 mins.), W. T. Walton (1 hr. 15 mins.), J. Wingate (30 mins.).

The following flew solos:—P. F. Heppell (53 mins.), W. H. MacKay (2 hrs. 23 mins.), R. N. Thompson (45 mins.).

Mr. W. T. Walton had a 17 mins.' joy-ride with Maj. Packman on Thursday and straightaway took 45 mins.' instruction, followed by a further 30 mins. on Saturday.

Mr. Baxter Ellis flew for 17 mins. on Saturday with Mr. Hudson as passenger and on Sunday for 30 mins. each with Mrs. Baxter Ellis and Mr. W. H. Leete. Maj. Packman took up for passenger flights on Sunday, Miss Jeffrey and Mr. Lackerby, each 15 mins.

Mr. R. N. Thompson made his first solo flight on Thursday. He performed exceedingly well on this and two later flights. On landing from what was, unknown to him, his last dual flight, he observed Maj. Packman, who is slightly over the six-foot mark and proportionately built, curling himself up in order to be able to leave the front cockpit (from which he gives instruction always), and, thinking that he was finished flying for the day, he also (Mr. Thompson) being of considerably smaller dimensions than Maj. Packman and very nimble, climbed out and was proceeding towards the hangar when he was recalled and told he was "launched."

This is an amusing incident when it is known that Mr. Thompson has been one of the greatest enthusiasts in the Club from the beginning, and has frequently expressed the hope that he would soon be flying alone. He did not hesitate when he knew the position. He was instructed to "get well up," and having carried out these instructions without troubling about other matters, for some time, he looked below and came to the conclusion that he had left the planet altogether.

Mr. Thompson is one of the members (Mr. Heppell is the other) who undertook to repair, decorate and furnish the Club House at their own expense. He is also an active member of the Committee and his achievements as a pilot have brought forth sincere congratulations from all members of the Club.

Mr. R. M. Stobie has now received his Royal Aero Club Licence.

The weather has been bad throughout the week, but flying has taken place each day except Monday.

It is very satisfactory that the Newcastle Club has been able to demonstrate that flying by a civilian Club can be carried out throughout the year, and it will, it is considered, have the effect of establishing confidence locally, where the limitations of aircraft are exaggerated in the public mind. New members are joining now and taking up their training right away.

It appears that the Club has been justified in carrying on as if the machines had been received in the Summer instead of the Winter (though, of course, a larger membership would have resulted immediately had the weather been better), and in carrying out the stipulations of the Air Counci as regards having a permanent Instructor and Engineer. The result has been that members may go up at any time to the aerodrome and be sure of a turn, so long as weather conditions allow.

There is already keen competition to obtain Pilot's Licences. We may not suffer greater financial difficulties through adopting a bold policy.

Whist Drives will be held in the Club House on Wednesday, the 16th instant, and Wednesday, Jan. 13, at 7.0 p.m. A charge of 1s. will be made.

Particulars as to membership will be sent on receipt of application to the Secretary, at 61, Quayside, Newcastle, to which address all communications should, for the present, be sent.

Apropos technical instruction at the aerodrome, the following misplaced definitions have arrived from an active-minded member:—

Orientation:—A subject dealing with the employment of Chinese labour on aerodromes.

Banking:—The Saturday morning occupation of aerodrome cashiers.

Over-banking:—That condition of "banking" which results in there being insufficient petty cash with which to pay the Pilot Instructor.

Tail skid:—A slang term used by American ground mechanics whilst playing "Pitch and Toss" on Sunday mornings. The opposite of "Heads bo."

Plane of Symmetry:—A flying machine engaged in the funeral furnishing business.

"B" Ticket:—A method of calling a Pilot's Certificate by its proper name when ladies are present.

Rhumb Line:—A line along which a Pilot must walk to prove that he is "capable."

Taxying:—Mode of transit to and from aerodromes.

Torque:—Instructors' directions which are conveyed to the pupil by means of telephones.

THE MIDLAND AERO CLUB.

The following letter has been received:—

"I, as a lady member of the Club feel called upon to answer your letter of last week concerning the progress etc. of the Midland Aero Club. May I point out that the majority of Birmingham newspapers, printed news of the club on its opening day and from time to time many others have published the progress of its members etc., one article being a long column on the 'neck and neck' race between Messrs. Savage and Hassall for the first solo flight, won in the end by a day by Mr. Savage, now however, these two have done several hours solo flying between them, and with great credit to their instructor Captain Macdonaugh.

"I point out that the Club has been opened barely eight weeks and there will shortly be more solo members.

"The Social side of the Club and courtesy on the part of its staff is all that one could desire, in asking questions concerning the Club or machines, technically or otherwise, of either the ground engineer Mr. Halland or instructor Captain Macdonaugh I have been answered with great perseverance patience and understanding, and may I point out that I am *merely* a Lady member.

"The staff is certainly not great but sufficient for the present, and I believe the committee is already arranging for a Club meeting room in Town. You mention an enclosure, does one wish to sit in 9 or 10 degress of frost and watch aeroplanes out of sight, I think not, and I feel sure there are many others who would agree, for there is a nice cosy and warm members room in which one may sit and enjoy a smoke and read the literature that the Club supplies for the benefit of its members.

"The Aerodrome as I feel sure one knows belongs to the Air Ministry and therefore one has to abide by the Government instructions, and I believe it is necessary for the safety of the public and the privacy of the Club to prevent such onlookers (as would merely roam across the grounds) from easy access by closing the gate.

"I would therefore suggest that 'Anonymous' should visit the Club more frequently and thus get into closer touch with its members and staff. (Signed) WYNNE HASSALL."

[One would point out that the letter to which objection is taken was written by a member of the Club and evidently represents the opinion of a portion of the membership. Personally one has no knowledge of the state of affairs, as the Club insists on remaining on the Secret List.—ED.]

THE YORKSHIRE AEROPLANE CLUB.

The absence of news about the activities of the Yorkshire Aeroplane Club seems to be explained by an article which appears in the December number of "The Olympian," the house organ of the Blackburn Company. This reads as follows:—

On Monday, Sept. 28, Flg. Off. Beresford came to Leeds from Spittlegate to inspect various sites chosen by the Club for aerodromes, and to report on their suitability or otherwise to the Aerodromes and Licences Dept. of the Air Ministry. Mr. Thornton and the writer went down to the Queen's Hotel on the Monday evening and met this officer on his arrival; they spent a useful evening discussing the Club's activities and examining maps of the districts in question.

At ten o'clock the next day Major King, Major Compston, and Messrs. Barnes, Addyman, Little, and the writer met by previous arrangement at the Queen's Hotel to take Flg. Off. Beresford out to the proposed sites. They first inspected the field at Rothwell, on the Wakefield Road, and Mr. Beresford appeared to consider the site quite suitable and requiring very little attention for immediate use. After taking the necessary dimensions and particulars the party drove cross-country to the site known as the Thorner Aerodrome, on the York Road. Mr. Beresford was even more favourably struck by the suitability of this site, and the committee members present determined to approach the owner again, though on previous occasions they had met with no success.

Although the landlord of the proposed site at Rigton, near Bardsey, had also refused to allow the Club to use it, some of the members present thought it possible that he might be persuaded to change his mind; accordingly they considered it advisable to take Mr. Beresford there also. Few members had seen this field previously, and the majority were disappointed in it when they arrived there. Mr. Beresford considered that the field was rather small, and that, owing to this fact and that there is a pronounced slope in the ground, and trees obstructing the most useful landing direction, the site was not at all suitable.

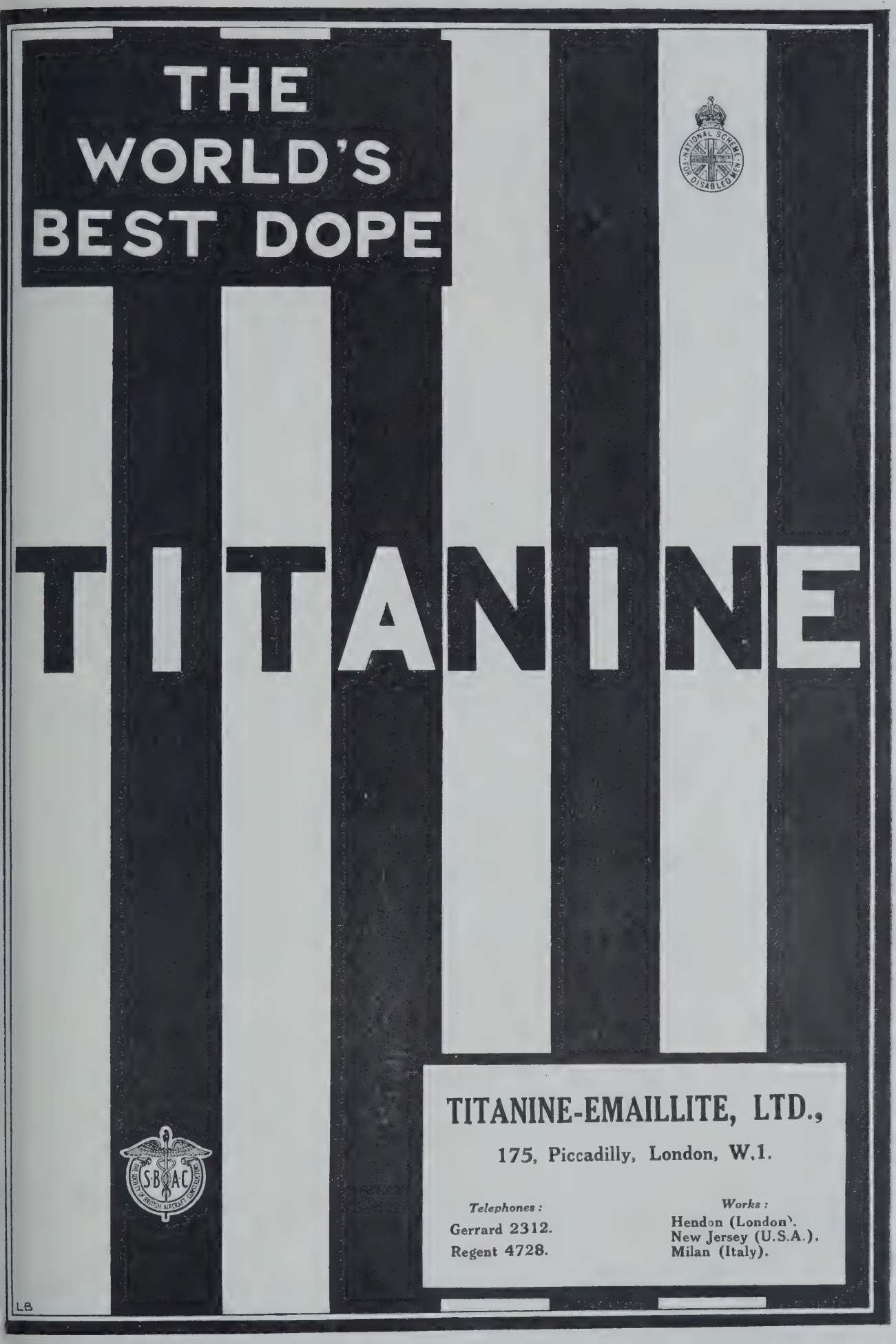
In the afternoon Flg. Off. Beresford very kindly accompanied Major Compston on a visit to the owner of the Thorner Aerodrome. They spent a long time trying to persuade him to allow the Club to use the field, but met with no success, and understood definitely that his decision could not be altered. In consequence of this the committee had no alternative but to ask Mr. Beresford to report on the Rothwell field.

It seems advisable here to draw the attention of all members to the fact that the committee have done their utmost to secure a suitable site within easier reach of Leeds, Bradford and Harrogate, and have visited about fifty grounds altogether. The Rothwell field is just off the main Wakefield road, and is well served by trams and buses from Leeds, being about a quarter-of-an-hour's journey from Briggate. The field is large, unobstructed, and capable of extension. The surrounding land is also reasonably good in cases of forced landings, and the tenant is a man who realises the national importance of aviation and will do all he can to assist the Club. Harrogate members, who are able to travel by road, need not pass through Leeds city itself, in fact it is shorter to leave the city on the west; they should be able to complete the journey in from three-quarters-of-an-hour to an hour, and the distance is less for other members. Naturally, the committee will continue to look out for a site in a more central district, but for the present all possible sources have been exhausted without success, and in order to make a start they must avail themselves of the only opportunity.

Pending the Air Ministry's decision with regard to the Rothwell field, Mr. Thornton and the writer were deputed to visit Mr. Patrick, the tenant, to make preliminary arrangements with him for renting the field. Accordingly, on Oct. 7, they went out to Rothwell and spent about two hours with Mr. Patrick, during which time all the details were discussed and it only remained to draw up and sign an agreement. In the meantime certain difficulties affecting the Air Ministry's decision were encountered, and it was considered advisable for Mr. Barnes, who was visiting London, to approach the Air Ministry. The latest news by telegram from him stated that he had succeeded in obtaining a licence for the proposed aerodrome.

G. C. F. ELY, *Local Secretary, Brough.*

[The only comment necessary seems to be that "the county of broad acres" ought to have no difficulty in providing a mere aerodrome.—C. G. G.]


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The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Mondy, 8; Tuesday, 6; Wednesday, 12; Thursday, 3; Friday, 0; Saturday, 13; Sunday, 0.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 25, passengers 58, freight 8 tons.

AIR UNION:
Paris—London: Machines 11, passengers 23, freight 6½ tons.

K.L.M.:
Amsterdam—Rotterdam—London: Machines 6, passengers 10, freight 1 ton.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES: Nil.

Total number of trips by British Machines: 25, carrying 58 passengers. Foreign machines: 17, carrying 33 passengers.

Comparative Figures:

For week ending Dec. 6:
Machines, 42; Passengers, 91; Crews, 53; Total personnel, 144.

Corresponding week, 1924:
Machines, 69; Passengers, 168; Crews, 85; Total personnel, 253.

Corresponding week, 1923:
Machines, 19; Passengers, 38; Crews, 27; Total personnel, 65.

Corresponding week, 1922:
Machines, 60; Passengers, 130; Crews, 116; Total personnel, 246.

Corresponding week, 1921:
Machines, 29; Passengers, 36; Crews, 49; Total personnel, 85.

Corresponding week, 1920:
Machines, 22; Passengers, 33; Crews, 28; Total personnel, 61.

Croydon Notes.

THE AEROPLANE is indeed a power in the land. In Croydon Notes last week one drew attention to the fact that poor Mr. Biddlecombe had for weeks been watching and waiting for fog which never came. One suggested that if the Director of Civil (and Uncivil) weather would not deliver the goods then the Air Ministry's Secrecy Department, or the Schneider Committee, might provide the goods.

Evidently Mr. Biddlecombe took one's advice, and all the said parties must have worked together or against one another as hard as they could. THE AEROPLANE was issued on Thursday morning, and by lunch time the fog started. It was quite thick by the evening, and on Friday it was absolutely dense. Mr. Biddlecombe had the time of his life popping up through the fog in his balloon at frequent intervals, like a jack-in-the-box.

He made all sorts of observations of the lighting arrangements and took up various pilots and other interested parties.

As a matter of fact some very interesting results have been obtained. It was found that the fog was only some 500 ft. thick, and that the Neon lights could be seen clearly through the fog from above it. The higher the balloon went above the fog the better could the Neon lights be seen. When the balloon was descending in the fog the Neon lights disappeared altogether, but the white flood light then became visible.

It would seem from this that a combination of flood lights and Neon lights should enable a machine to locate its aerodrome and land safely in fog.

A gentleman interested in excavation has recently discovered that the famous ridge running North and South across the aerodrome is in fact part of the remains of an old Roman Road which ran from London to Brighton. This suggests that perhaps the Hotel Metropole may also have a Roman origin. So now we know that it was a Roman Road that was responsible for so many broken undercarriages, and not merely a ridge.

This at any rate should prove some slight consolation to Mr. George Bradley, Mr. McMullin, and others of its victims. It is annoying to have one's undercarriage removed by a mere ridge, but somehow or other an ancient Roman Road seems to soften the blow, or at any rate give an air of respectability to the proceedings.

Much amusement has been caused by the publication in *The Daily Mail* last week of a story of a test at Le Bourgêt of a giant new air liner, the Vickers-Rolls-Royce Vanguard. Complete photographs of the machine were given. Considering that the machine is nearly a year old, appeared at the R.A.F. Pageant, has already been used for a Press banquet, had a concert broadcast from it, and has been running on the regular service with plenty of attendant publicity for several weeks, the *Mail's* Paris correspondent seems rather behind the times and the *Mail's* sub-editors seem to fall rather easily for "giant air-liners."

Mr. Leverton used the darkness of Mr. Biddlecombe's fog to flee from the ancestral home on the aerodrome to the new homestead he has built unto himself on the Wallington side. The fog successfully hid the tears of anguish caused by the parting.

One is exceedingly glad to hear that the epidemic which attacked certain people at the aerodrome of wearing club ties to which they had no right, is dying out. It reminds one of the recent jest in *Punch,* of the young man going into a shop and asking the assistant for an old school tie. When the assistant asked what school he required, the youth replied, "Oh, any *good* school." The *Punch* artist very cleverly depicted the type of person who does that sort of thing.

G. D.

M. Dewoitine at the Institution of Aeronautical Engineers.

On Tuesday, Dec. 15, M. Dewoitine, the famous French constructor, is to read a paper before the Institution of Aeronautical Engineers, on the Metal Construction of Aeroplanes.

The meeting will be held in the lecture room of the Junior Institution of Engineers, 39, Victoria Street, at 6.30 p.m., and Lt.-Col. J. T. C. Moore Brabazon, M.C., M.P., the President of the I.Ae.A., will be in the chair.

The paper promises to be of exceptional interest, and it is to be hoped that a large audience will be present.

Survey in Sarawak.

Some time ago this paper notified the fact that Mr. Ronald Kemp was negotiating for a big contract for air survey work in Sarawak. News has now been received from Mr. C. A. Dodds of Air Survey Co. Ltd., 3, Copthall Buildings, Copthall Avenue, E.C.2, that Mr. Kemp has now definitely fixed the contract for this work with Rajah Brooke's Government. Mr. Fred Raynham who is with Mr. Kemp in the East will take charge of the flying operations.

A RUSSIAN GLIDING RECORD.

At a gliding meeting held in the Crimea, Herr Ferdinand Schultz, a German competitor, is reported to have remained in the air for 12 hours 6 mins. 22 secs. The previous "record" for duration was held by Commandant Massaux, of the Belgian Army, who, on July 26, 1925, remained in the air for 10 hrs. 19 mins. 43.3-5 secs., during this year's Vauville meeting.

As the Russian Revolution put the clock of progress back several hundreds of years, perhaps the clocks of Russian time-keepers work on a similar principle, and so the record may have been made by starting at a minus hour instead of at zero hour.

AIR AFFAIRS IN PARLIAMENT.

STATISTICS.

In the House of Commons on Dec. 1, in reply to a question by MAJOR GLYN, the SECRETARY OF STATE FOR AIR said that the number of Army officers seconded to the R.A.F. under the scheme authorised by the Air and Army Councils in November, 1920, was 106. The scheme for the secondment of R.A.F. officers for the Army had not been intended to be put into immediate operation and no secondments had yet been made.

The number of officers on the Reserve of Air Force Officers was 938. Of these 648 were fully qualified pilots and 549 were in regular flying practice.

THE RELEASE OF RECRUITS.

In the House of Commons on Dec. 2, in reply to a question by MR. SCRYMGEOUR, the SECRETARY OF STATE FOR AIR said that airmen were entitled to claim their discharge within three months of the date of attestation on deposit of a sum of £20. Discharge other than the foregoing was a privilege granted only subject to the requirements of the Service.

WORKS AND BUILDINGS.

In the House of Commons on Dec. 2, in reply to a question by COL. GRETTON, the SECRETARY OF STATE FOR AIR agreed that it was "the policy of the Air Ministry to proceed expeditiously to erect and acquire buildings," but added that the prevailing financial stringency must be taken continuously into account.

CASTLE BROMWICH.

In the House of Commons on Dec. 2, in reply to a question by MR. SCURR, the SECRETARY OF STATE FOR AIR said that it was not proposed to build a new aerodrome at Castle Bromwich, but merely to recondition and modify the existing buildings to meet the requirements of an Auxiliary Air Force Squadron and the estimated cost was £30,000. The land was formerly occupied under compulsory powers.

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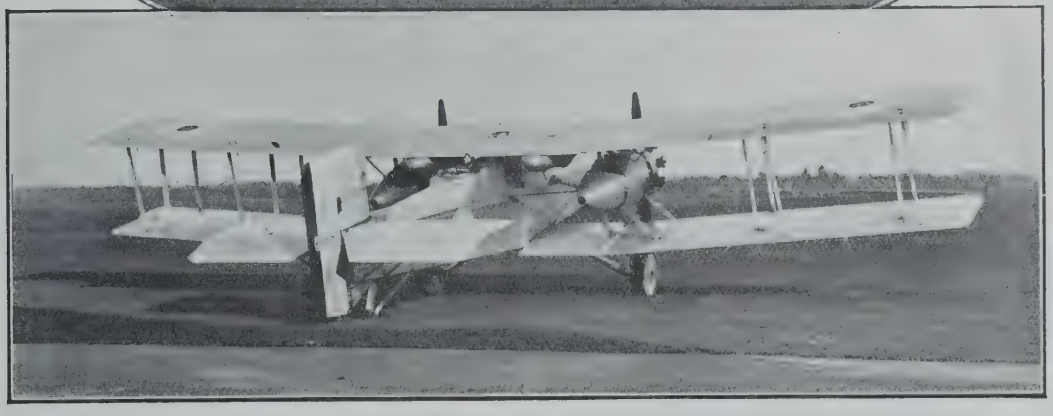


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not owned by the Air Ministry, and the price realised for the buildings by the Disposal Board was £18,000.

MR. HARMSWORTH pointed out that the land worked out at £335 an acre, and SIR SAMUEL HOARE replied that this was the cheapest land available in the neighbourhood.

ACCIDENTS.

In the House of Commons on Dec. 2, in reply to a question by BRIG.-GEN. BROOKE, the SECRETARY OF STATE FOR AIR said that there had been 39 fatal accidents in the R.A.F. since the beginning of the year resulting in 55 deaths of personnel. Courts of inquiry were held in all cases and all available means were employed to determine the causes of the accident. He analysed the 39 accidents under the following heads:—Due to engine or installation failure, 3; to error of judgment, 19; to defect in aircraft construction, 1; to miscellaneous or as yet undetermined causes, 16.

MACHINES AND PERSONNEL.

In the House of Commons on Dec. 2, in reply to a question by COL. GRETTON, the SECRETARY OF STATE FOR AIR said that the present distribution of first line units of the R.A.F. with an average of 12 machines to a squadron was 27½ squadrons at home, the equivalent of 9 squadrons for the Fleet Air Arm, and 18½ squadrons distributed between India, Iraq, Egypt, Palestine, Aden and Malta. The present number of pilots and observers available for immediate service was 2,163 pilots and 29 observers.

SERVICE MACHINES AND ENGINES.

In the House of Commons on Dec. 2, in a written answer to a question by SIR F. SYKES, the SECRETARY OF STATE FOR AIR said that no machines of the type fitted with American Curtiss engines had been purchased and tested by the research department of the Air Ministry. The machine which was built by the British contractor at his own expense and remained his property during the tests had not been purchased by the Department.

Eighteen machines were about to be ordered.

While there was no hard and fast procedure, the general practice was that if the research department required a machine to a certain specification an order for three was normally given to each firm selected. As many as eleven had been ordered to one specification.

This procedure was not applicable to the case in question in which an experimental machine had been produced displaying certain satisfactory results which made it desirable to try it out for operational purposes on a squadron basis.

Sir Samuel Hoare's reply to the last part of Sir F. Sykes' question was that an order for 30 machines had recently been placed with a British manufacturer two months before the British engine for which they were designed had actually passed the type test. In this case, as in that of the Curtiss, the contract had been proceeded with as soon as it became evident that the completion of the engine test after certain modifications was no longer in doubt.

LT.-CDR. KENWORTHY asked how many firms in Great Britain were supplying water-cooled aeroplane engines of 450 to 500 h.p. for the use of the R.A.F.? SIR SAMUEL HOARE replied: "One company at present, but another company is building an experimental engine."

MARRIED QUARTERS.

In the House of Commons on Dec. 2, in a written answer to COL. DAY, the SECRETARY OF STATE FOR AIR replied that he was aware of some hardship for married airmen owing to the lack of married quarters. Steps were being taken to provide the necessary accommodation. At present over 55 per cent. had been provided, 20 per cent. were under construction, and it was hoped to complete the remainder in the course of the next few years.

RE-OCCUPIED AERODROMES.

In the House of Commons on Dec. 3, in reply to a question by SIR F. SYKES, the SECRETARY OF STATE FOR AIR said that the following air stations were being re-occupied: Bicester, Boscombe Down, Filton, Castle Bromwich, Hendon, Hucknall, Sutton's Farm, Upper Heyford, Waddington, and Wittering.

CELLON AND CERRIC.

Cellon (Richmond) Ltd., besides having a record output of dope both for home and foreign consumption, are now supplying a large quantity of Cerric enamels for the protection and finish of metal fittings of aircraft. In addition Cerric enamel is found to be singularly suitable for coating wing and fuselage covering when anything other than fabric is used.

Owing to the increased use of plywood and metal covering for planes and fuselages, there is likely to be a big demand for Cerric in the near future.

Already there is a daily growing demand for Cerric for motor-body finishes, and in this connection Cellon (Richmond) Ltd. have produced an interesting booklet dealing fully with the many advantages of Cerric over other forms of varnish.

A copy of this booklet can be obtained from Cellon (Richmond) Ltd., Cellon Works, Petersham Road, Richmond, Surrey.

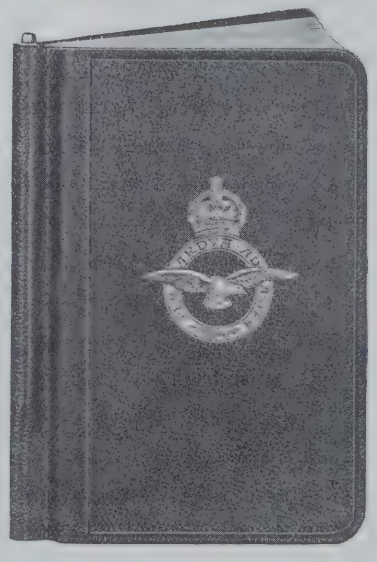
THE WISDOM OF SOLOMON.

The firm of D. Napier and Son, Ltd., was founded about 130 years ago. At that time it was stated that a rosy-cheeked lad joined them whose name was A. H. M. Solomon. From that time onwards he has been connected with their sales side. Recently the Napier Company decided to give up motor-car building because the whole of their available works space has had to be used to keep pace with the demand for aero-engines, for nowadays the Napier Company is the biggest manufacturer of aero-engines in the World.

Consequently Mr. Solomon has moved on to A. C. Ltd. and rejoined Mr. S. F. Edge, at one time of Napiers, and now the leading light of A.C. cars. Mr. Solomon is the Works representative in the Pall Mall Offices. One recently came across him when he was paying a few calls in the City, and looking as young as ever.—G. D.

JUST PUBLISHED.

THE R.A.F. POCKET BOOK and DIARY 1926



This Diary has been compiled by permission of **THE AIR MINISTRY** and will be found to contain valuable and exhaustive information of a service nature.

Foreword by H.R.H. THE DUKE OF YORK, K.G., K.T., G.C.V.O. and Air Chief Marshal Sir Hugh M. Trenchard, G.C.B., D.S.O.

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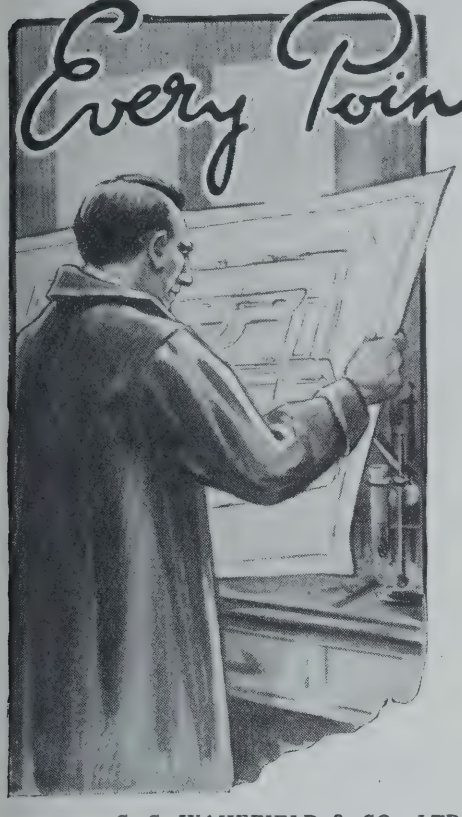
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ENGLAND.

TURKEY'S AIR FLEET.

It has been reported in *The Times* that the Turkish Government has placed an order with the Rohrbach Metall-Aeroplan Co., A.S., of Copenhagen, for fifty all-metal single-seater fighter aeroplanes, with delivery to be completed within twelve months. The machines will be fitted with the 400 h.p. B.M.W. engines.

Turkey has also purchased a number of Caudron C.59 training biplanes fitted with the 180 h.p. Hispano-Suiza engine.

These orders, together with one or two other small orders placed with other French firms, are the result of the tour of inspection made by a Turkish Mission to the Western European aircraft factories.

So far it is not known that the Rohrbach Co. have constructed any small aircraft of the type ordered by Turkey, and it can only be presumed that the order was "placed on the drawing board."

K.L.G.s IN THE ORIENT.

Writing to the Robinhood Engineering Works Ltd. in reference to his great flight with the Marchese de Pinedo from Rome to Tokyo and back via Melbourne, Signor Campanelli, the engineer of the Marchese's Savoia flying boat, says :—

"From Batavia to Melbourne, on our important Raid, the K.L.G. plugs type F.15 have given insuperable results. Excellent starting—excellent slow march—excellent render during the flight."

One gathers that at the start of the flight the Lorraine-Dietrich firm who supplied the engines insisted on the use of a French make of sparking plug and that these were replaced at Batavia and K.L.G. plugs were used for the rest of the journey.

ABOUT PALMERS.

Seeing that the Palmer Tyre Ltd. supply at a rough estimate 99.9 (recurring) per cent. of the tyres for aircraft in this country, naturally everybody in the Trade is constantly wanting to communicate with the firm. Only, unfortunately, everybody does not keep an up-to-date address-book. And so the firm still receives quantities of letters forwarded from their old premises in Shaftesbury Avenue which in fact should be addressed to 100-106, Cannon Street, London, E.C.4.

Those who habitually communicate with the Palmer Tyre Ltd. are particularly asked to note the address.

Incidentally, one has been using Palmer Tyres on the Editorial Talbot since about Oct. 1. In that time they have run just upon 4,000 miles and the amount of wear on the treads is hardly perceptible. The spare wheel was brought into use for the first time a few days ago merely to keep it wearing down at the same rate as the other tyres.

On comparing the depth of its central ridge with the depth of the rest of the set it was found to be only a very few millimetres deeper than that of the used tyres. At the rate of wear shown on the other tyres one calculated roughly that some 35,000 miles of wear would be necessary to grind the treads flat.

NEW COMPANY.

O.B. Engineering Co. Ltd.—Private co. Registered Nov. 28. Capital, £2,000 in £1 shares. Objects: To carry on the business of engineers, founders, smiths, machinists, manufacturers and patentees, manufacturers of and dealers in automobiles, airships, flying machines and aeroplanes, etc. The permanent directors are: W. D. Oddy, 47, Gledhow Wood Grove, Roundhay, Leeds, engineer (chairman). F. W. Oddy, 47, Gledhow Wood Grove, Roundhay, Leeds. E. Bennett, 11, Talbot Avenue, Burley Hill, Leeds. Solicitors: Hepworth and Chadwick, 14, Butts Court, Leeds. Registered office: 95, Hunslet Lane, Leeds.

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PERSONAL NOTICES.

Death.

GRAHAME-WHITE.—On Dec. 3, at "Fairholme," Faygate, Sussex, Ada Beatrice, widow of John and beloved mother of Beatrice, Montague, and Claude Grahame-White, in her 72nd year.

Forthcoming Marriages.

BROOKE-POPHAM—HUGONIN.—The marriage arranged between Air Vice-Marshal Brooke-Popham and Miss Opal Hugonin, will take place at All Saints' Church, Ledsham, Yorkshire, at a quarter past two o'clock on Jan. 5.

NEWALL—HEWLETT.—The engagement is announced, and the marriage will shortly take place, between John Sydney Newall, R.A.F., only son of Mr. John Walker and Mrs. Newall, of Ongar, Essex, and Alfreda Margaret, younger daughter of Mr. Alfred and Mrs. Hewlett, of Parbold, Lancs, and Haseley Manor, Warwick.

Births.

BANKES-JONES.—On Nov. 27, at Clifton, Shefford, Beds, to Edith (*née* Siepmann), wife of Rev. R. M. Bankes-Jones, R.A.F.—a son.

MACKEY.—On Nov. 30, at the Golf House, Andover, to Kathleen, the wife of Sq. Ldr. C. W. Mackey—a son.

MACNAB.—To Doris, wife of Flt. Lt. J. A. Macnab, on Nov. 5—a son.

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INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXIX. No. 25. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

THROUGH THE DEFENCES.



A HALT BY THE WAY :—The Marchese di Pinedo refuelling with Shell Spirit in Israelite Bay, Western Australia, in the course of his 34,000-mile flight. The Marchese di Pinedo is one of the select band of pilots who, starting from Europe has penetrated the natural defences of Australia by aeroplane.

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DEC. 16, 1925.

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ON THE DEFENCE OF AUSTRALIA.

One of the most interesting subjects involved in any all-round discussion of the Next War is the part which Australia both as a continent and as a nation will play therein. And the strategy of Australia, whether considered from a point of view of the task of the Australian naval and military Staffs or as part of the strategy of the British Imperial General Staff is one of the most interesting problems confronting those who choose to study the Next War.

Although Australia is a continent apart, and a long way apart, from the rest of the World, when considered as a place to be reached by steamships, it is in fact very closely linked to our Indian Empire by the islands of the Dutch Archipelago. The longest stretch of water between the southernmost Malay Island and the northernmost point of Australia, on the direct route from Timor to Bathurst Island, opposite Port Darwin, is about 250 miles. Which with modern aeroplanes is only a couple of hours' flying and with the high-speed machines which ought to exist in the next war is only an hour. And further East, between New Guinea and Cape York on the mainland of Australia, across Torres Strait, the distance is only about 100 miles and that distance is so filled with islands that an aviator would never be out of sight of land of some sort.

Those pilots who have hitherto flown to Australia have always taken their chance over the open sea between Timor and Bathurst Island. But it is quite possible to fly to Australia by way of Borneo, Celebes and New Guinea and never be out of sight of land. The uninterrupted chain of islands on this route is of prime importance both strategically and tactically, because if properly used the islands can be made an impenetrable barrier to prevent the Japanese Navy from getting through to the Indian Ocean and interfering with our shipping between England and India and Burma and the Dutch East Indies. But up to the present the islands have been regarded rather as themselves a barrier to communication with Australia in that they have themselves been a danger to shipping and their inhabitants, having a love of their fellow-men which is stomachic rather than spiritual, have even now in places an embarrassing habit of absorbing the crews of wrecked vessels.

Consequently communication with Australia has been by slow steamers over vast expanses of open ocean to the southernmost parts of the continent which are furthest removed from all other inhabited country. The result has been that emigrants to Australia, among whom the English preponderate to a greater degree than in any other part of the World which has been colonised from Europe, have tended to become more and more self-supporting, more and more self-centred, and, very naturally, more and more self-opinionated.

The Independent Australian.

In no other colony does one find such a feeling that the inhabitants are independent of the Mother Country both because they have to be and because they want to be. It is true that the native-born Australian even to the second generation talks of going to England as "going home," and does regard England as the Mother Country far more than does the Canadian—who is apt to regard the cheapest form of Americanism as his ideal in manners and customs and language. Yet when the commercial, or what one must call national, interests of Australia and the Mother Country clash in any way the Australian is more likely than any other colonial to devote himself body and soul to his own national interests.

Here one would like to remark that one is not using the



COAST DEFENCE.—A Blackburn Velos (Napier engine) flying over the Brough Aerodrome on the Humber.

term Colonial in any disrespectful or derogatory sense but strictly according to its proper meaning. The Roman "Colonia" was a military station in which was quartered a column, or colonia, of the Roman Army to protect the frontier. And so it means not merely an outpost of Empire but one of the columns or pillars on which the Empire is supported. To call a man a colonial should be in fact the highest compliment that can be paid to him by a stay-at-home citizen of the Mother Country.

It is natural that there should be to a certain extent a conflict of interests and ideas between the Colonies and the Mother Country in any Empire. The colony as a rule has to be self-supporting and as an outpost must naturally develop an independent spirit. On the other hand the people of the Mother Country are bound to regard the colonial very much as the inhabitants of a metropolis regard provincials. And because the Colonies are farther from the Mother Country than the provinces are from the metropolis the intellectual gap between the two is apt to be wider.

The Imperial Australian.

In spite of this self-centred and independent attitude of the Australians the brief life-history of the Australian Colonies shows that whenever the British Empire as a whole has been in difficulties Australia has done more than her share in support of the Mother Country. In the South African War, 1899-1902, Australia contributed more troops than did any of the other Colonies. And in the War 1914-18 Australia recruited voluntary soldiers not only in greater numbers but more rapidly than did Canada with a population approximately seventy-five per cent. greater.

Moreover the majority of the early contingents of Canadians who came to Europe were British-born who had merely emigrated to Canada, and the Canadian-born were to a great extent brought in as conscripts later in the War. And the Australians, who had enlisted voluntarily with such enthusiasm in the early days of the War, refused to introduce conscription at a later date whereas conscription was thrust upon the Canadians as a matter of policy by their politicians.

Thus one may infer that while the Australian is the most independent of all colonials he is also the best Imperialist. Which after all is natural considering that Australia is entirely cut off from any other white nation whereas Canada is geographically indistinguishable from the United States.

The self-dependence of the Australian and his independence of all other people is perhaps best illustrated by the alleged Australian motto, which is so often quoted by Australians themselves, and goes, "Get up early every morning with a clear conscience, look every man straight in the eye, and tell him to go to Hell." Which is by no means a bad motto for people situated as the Australians are.

The Native-Born Australian.

Australia's problems are complicated by the difficulty of maintaining a white population in Australia. The great idea of the native-born Australian seems to be to raise or at least maintain the physical and mental standard of the Australian and to raise the standard of living and to maintain the white population. Every Australian believes with patriotic fervour that any Australian is better than any other white man—which again is a wholly commendable belief.

There are occasions on which the enthusiastic Australian is apt to become a trifle overpowering on this subject. In which connection there is a story which is worth telling.

At a party in London during the War 1914-18 a rather young Australian officer had been impressing on those present the fact that the Australians were the finest people in the World, physically, mentally, morally, politically and every other way. When he paused for breath after about half-an-hour on his pet subject a rather superior English officer remarked in a tired voice, "Well, you ought to be the finest people in the World. Your ancestors were sent to Australia by the best judges."

One felt at the time that the Australian's momentary homicidal tendencies were justified, even though the English officer happened to be a personal friend. At no time is it advisable to remind an Australian that his country started business as a convict settlement. In fact it is unfair, because at this date there can be but little of the blood of the original unwilling settlers left in the country. And in any case the difference between a great sinner and a great saint is largely a matter of luck, a clever forger might easily under better circumstances be a great artist, and the dividing line between a first-class criminal and a first-class politician is almost invisible.

The Population Difficulty.

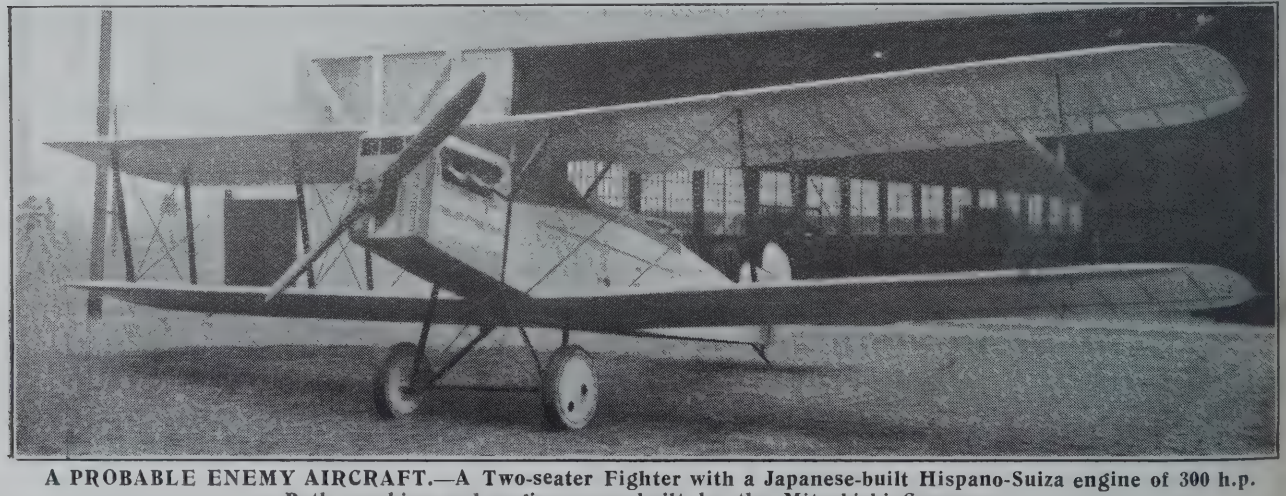
Australia's difficulty in creating a White Australia is due to a number of different causes. In the first place the endeavour to maintain the standard of living causes Australia's politicians, at the behest of their democratic electors, to place serious obstacles in the way of the immigration of unskilled and skilled labour. This in itself is praiseworthy, but while it keeps the standard of wages high it also keeps the cost of living high. This fact coupled with the high steamship fare necessary for such a long voyage keeps out of Australia great numbers of wholly desirable workpeople who cannot afford the voyage or the cost of living while finding a job in Australia. Thus the population of Australia by immigration increases very slowly.

On the other hand the population does not increase as it naturally should do by the excess of births over deaths. In the first place it is obvious in every country that the well-to-do classes do not have large families. The desire of a middle-class couple in comfortable circumstances is to leave their children at least as comfortable as they are themselves and if possible more so, and so they limit the number of their children.

Apparently the only people who breed large families are the so-called working classes who are either so poor that they do not care how poor their children become and consequently do not care how many children they have, or are in such a position that their children begin to earn a living at a very early age with the result that the children are practically slaves to their own parents and are a financial asset.

Incidentally few people seem to realise that the word "proletariate" does not mean the working classes but actually means the class which has children, the word *proles* being the Latin for children and the basis of the word "prolific" which everybody uses in its correct sense. The reason is that in the days of Rome, and probably tens of thousands of years before, the people who did the rough work always had quantities of children, because the children were slaves to their parents though the parents in their turn were either chattel-slaves or wage-slaves to their employers. Anyhow Australia being populated by well-to-do people with a high standard of living has no Proletariate and so does not increase its population.

Furthermore, the problem is again complicated by the fact that, according to recent ethnological research, in a country which is afflicted by an excess of sunshine the white race ceases to breed. The result is that after three or four generations Australian families have no children at all unless fresh blood is imported by immigration from Europe. It would be interesting to discover whether there does exist in fact an Australian of the fifth or sixth generation, all of



A PROBABLE ENEMY AIRCRAFT.—A Two-seater Fighter with a Japanese-built Hispano-Suiza engine of 300 h.p. Both machine and engine were built by the Mitsubishi Company.

Captain H.S. Broad and the Faultless Napier



The following letter has just been received from Captain H. S. Broad, the famous aviator who piloted the Gloster-Napier III in the 1925 Schneider Cup race—

D. Napier & Son Ltd.,
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Dear Sirs,

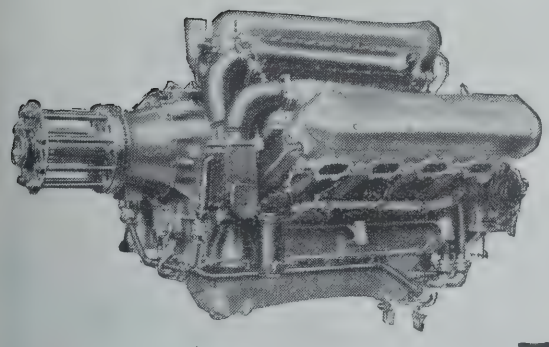
I feel I must pay a small tribute to the magnificent performance of the direct-drive Napier 'Lion' engine fitted to the Gloster III seaplane in the recent Schneider Cup race.

During the initial test flights and throughout the race itself the engine ran faultlessly and never gave me a moment's anxiety. It did all that was asked of it and was even giving slightly more revolutions per minute at the end of the race than at the beginning.

I congratulate you on such a wonderful product.

Yours faithfully,

Hubert S. Broad



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whose ancestors during those generations have been Australian-born.

This theory alone, if substantiated, would seem to defeat entirely the idea of a self-increasing White Australia, for apparently the population can only be maintained at its present level by immigration from Europe. And if it is to be increased there must be an enormous increase of immigrants

Anyhow, the net result is that we have in Australia a continent which, leaving out the central desert and taking only the fertile parts, could at the most moderate estimate maintain a population of some 50,000,000 people whereas it has in fact a white population of only 5,000,000. The only consolation of the Australian appears to be contained in a remark by an intelligent young woman who on hearing these figures said, "It must be rather nice to be so rare."

The War Problem.

Now there we have the real key to Australia's position in World Politics. Canada, which is at any rate a white man's country, has already a population of 8,800,000 of whom 418,000 went overseas during the war 1914-18. Australia, which is not in fact a white man's country, has a population of only 5,000,000 and enlisted 417,000 men, practically all of whom went overseas.

On that showing the Australian is perfectly willing to fight. But obviously there are not enough of him to defend his vast Continent by any of the means recognised by armies and navies before the War 1914-18. And the problem before the Government of Australia and the whole British Empire is what is to be done about it.

In Australia itself there appear to be two schools of thought on the subject. One is that Australia must be defended at all costs. The other is that there is no need to defend Australia because nobody wants to take Australia.

The first school is again divided between those who argue that it is the job of the British Empire to defend Australia in the interests of the Empire and those who argue that in the next war Australia will have to defend herself because the Imperial forces, sea, land and air, will be very much too busy somewhere else to bother much about five million white people cut off from their kind by some thousands of miles of ocean.

The only point on which all these three sections agree is that when they talk of the enemy in a general way they always mean the Japanese.

Even those who argue that nobody wants Australia admit that if anybody did want it the Japanese would. And they are even prepared to admit that the Japanese do want the northern parts of Australia with their valuable sugar-growing areas, pearl fisheries and so forth.

The Passive Party.

But apparently the point of view of these people is that Northern Australia does not interest them. They are very like the people of Marseilles during the War 1914-18 who, when anybody from the French Army came there, either on leave or on his way through to or from the Army of the Orient at Salonique, used to ask casually "How is your war going in the North?"

It would seem that a certain section of the town-dwellers of Sydney and Melbourne are quite prepared to let the Japanese have North Australia so long as they are left in peace. These people evidently do not recognise that the Japanese are not in fact suited to a tropical climate any more than are the Nordic peoples, and that if the Japanese obtained the mastery of the Pacific they would proceed to settle in the more temperate climate of New South Wales and Victoria rather than in the sun-blasted wastes of Queensland and the Northern Territories.

Nor do these people understand that even though the Japanese may not waste troops in capturing and holding the inhabited portions of Australia they may very well despatch a few ships with aircraft to bomb and bombard the coast towns, so as to force the Australian Government to hold there at any rate some hundreds of thousands of men who would otherwise be available to assist the British sea, land and air Services in maintaining the cordon across the Malay Archipelago from Singapore to Port Darwin.

Personally one cannot believe that this particular school of thought has much weight in Australia. Its ideas are as thoroughly unpractical as those of the Conscientious Objectors in the recent war, and of the intellectual Communists who believe that so predatory an animal as man can be reduced to lamb-like pacifism by merely preaching the doctrine of altruism.

They forget the one great lesson of History, which is that the people who will not fight for their own independence become the victims of the first tribe which comes along with arms in its hands and that at the finish intellect—unless that intellect is used for the production or operation of warlike apliances—must become the victim of mere brute force.

Parenthetically one may remark that some philosopher writing recently on the subject of war in general remarked that pacifists and other disbelievers in the efficacy of war do become in time of war rather a source of strength, in that by the time the bloodthirsty war-makers have just about exhausted themselves those who are pacifically inclined have become convinced of the necessity for war and are just getting nicely into their stride and so turn the scale against the hostile nation which may have attacked their own country. Nevertheless one does not quite believe in this argument in favour of the existence of pacifists.

England's Limit.

Thus we arrive ultimately at the two other schools of thought, those who believe that the British Empire should defend Australia and those who believe that Australia should defend herself.

Personally one is firmly convinced, in theory, that the rest of the British Empire should defend Australia, because in spite of its small population Australia does supply us with a vast amount of food and wool and gold and other commodities required by a nation which cannot support itself. And obviously any sensible nation will protect to its utmost ability its sources of supply.

Unfortunately when the Great War does come the British Army and most of its Air Force will be so busy helping to protect civilised Europe from the Russian Barbarians that there will be hardly any troops or aircraft available for any other purpose. And any aircraft which we can produce, for the first couple of years at any rate, in excess of those required in Central Europe will be needed to hold the line from Singapore to Port Darwin and either to protect the Dutch Oil Islands against capture by the Japanese or—if we are too late, as usual, in entering the war—in helping the Dutch and Americans to drive the Japanese out of the Dutch Oil Islands.

The British Navy based at Singapore, if its beautiful dockyard there has not already been destroyed by Japanese air force, will be fully occupied in among the Malay Islands trying to meet the Japanese Fleet or chasing Japanese submarines all over the Indian Ocean. At any rate there will be little enough of it left to defend Australia.

Therefore, with all the best will in the World on the part of the Mother Country, it is fairly evident that Australia will have to depend for her defence on her own resources.

Australia's Limitations.

Now, whether the Japanese want to occupy a part of Northern Australia with an Army or whether they will be merely content with bombarding Sydney and Melbourne, there is little likelihood of an Australian Army being much use in the defence of Australia.



A JAPANESE SEAPLANE.—A Kawanishi VI with 260 h.p. Maybach engine, which flew round Japan.


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If the Japanese want to land troops somewhere around Torres Strait to establish there an air base from which to operate against our aircraft on the Singapore—Port Darwin line an Australian Army could hardly be run up by rail and road to repel them. And if an Australian Army got there it would be perfectly helpless without adequate air force to act as scouts and as a defence against Japanese air force.

If the Japanese merely amused themselves by bombing and bombarding the Australian coastal towns and cities an Australian Army would be useless in any case. The best it could do would be to repel landing parties if the Japanese Fleet took the notion to land in force and burn and loot the cities. And even then one doubts whether sufficient troops could be moved from one point to another in time to arrive before the Japanese Fleet appeared on the scene.

As for naval defence, nothing can be more obvious than the fact that a population of five million people cannot afford to maintain, let alone build, a fleet which would have any effect on even one squadron of the Japanese Navy.

Recent naval propaganda in Australia, backed by visits from British warships and driven home by eloquent speeches delivered by senior officers of the Silent Service, have induced the Australian Government to sanction the spending of some £6,000,000 on building two cruisers of the lighter sort. This tax of something over £1 per head on the population of Australia will in due time produce two ships whose sole use in a naval war in the Pacific will be to run away from the Japanese Fleet emitting loud screams on their wireless to warn Australia that she is about to be attacked.

A couple of light cruisers cannot fight the Japanese Navy. And though dying gallantly against overwhelming odds may be spectacular and heroic it is merely waste of men and money when it serves no good purpose.

The only other use for these two Australian cruisers will be to add them to the British Navy wherever the Fleet may be occupied, according to the judgment of Their Lordships of the Admiralty. And, as one has suggested, there is little likelihood of that Fleet being employed in bulk for the defence of Australia.

Therefore a consideration of the whole problem leads us logically to the conclusion that Australia's cheapest and most effective form of defence must be an adequate air force.

Australia's Air Ability.

During the War 1914-18 Australia sent us to our private wars in Europe and the Middle East brilliant fighting aviators in numbers entirely out of proportion to the total population of Australia. Men bred in Australia have for many years held a high reputation as horsemen, and there is some natural affinity between the horseman and the aviator. One has never known a good horseman who was a bad pilot. This fact may possibly account for the high proportion of good pilots among the Australian Forces.

In both the Royal Naval Air Service and the Royal Flying Corps Australian pilots did distinguished service. And to-day in the Royal Air Force a number of our most valuable officers, many of them wearers of numerous orders and decorations for gallant fighting service, are of Australian birth and upbringing. Consequently there is no doubt that Australia can provide a very large number of thoroughly competent pilots and mechanics.

In this connection it is well to remember that the three air lines which are flying regularly in Australia, that in Queensland, in Victoria and in Western Australia, show the highest percentage of regularity of any air lines in the World. This at any rate proves that the art and science of aviation is being maintained at a high level in Australia. Even though there be a very small nucleus of personnel it does at any rate show that the human material exists in the country.

If Australia could recruit 417,000 men for the Army in the War 1914-18 it could certainly recruit 250,000 for the Royal Australian Air Force for the defence of Australia. And there are in Australia to-day quite enough experienced war pilots and thoroughly able mechanics to train and instruct in the piloting and maintenance of aircraft all the men that Australia could possibly need for her defence.

A total force of 250,000 men would mean roughly 8,000 aviators and 240,000 mechanics and ground staff generally. Which is the proper proportion, as found necessary in the recent war, of thirty men on the ground for each aviator in the air. Such a force equipped with modern aircraft could assure the defence of Australia against any possible invasion or even momentary attack by the biggest navy in the World.

The £6,000,000 which Australia has allocated to the purchase of two cruisers which, as demonstrated, would be perfectly useless to Australia in war, would at a moderate estimate provide something like 1,000 aeroplanes of the most modern kind, taking them in reasonable proportions of single-seat fighters, which are fairly cheap, two-seat high-speed bombers, which cost rather more, and big torpedo-droppers and heavy bombers which are still more expensive.

Such a fleet of aircraft though it would only be a nucleus for the full strength of the Royal Australian Air Force, would practically assure Australia against any possible Japanese attack which could be made within the next five years.

Assuming then that Australia cannot afford to build or maintain a Navy to protect herself, and that though she could afford to raise and equip an Army that Army would be useless against such an attack as Australia may expect, and that Australia can, without in the least overburdening her finances, equip, train and maintain an Air Force which would ensure her safety against attack from the sea, we may proceed in the next instalment of this article to consider in what manner such an Air Force could protect Australia.

(To be continued.)

GERMAN AIR RIGHTS.

Negotiations, consequent on the conclusions of the Locarno agreements, are in progress in Paris between the British, French, Italian and German Governments, with a view to a settlement of the question of the right of Allied commercial aeroplanes to fly over German territory. Conversely the question of the right of German aeroplanes to traverse the territory of other countries concerned, is being discussed.

German's geographical situation makes her the centre of international commercial air routes, and the imposition of the "Nine Rules" by the Allies, which were originally intended to place a check on German aeronautical progress, has merely reacted as a serious check on French and British aviation.

Germany has, in spite of the Allied methods as imposed by the French, organised a network of air lines within Germany, all of which compete favourably in fares with the railways and can rapidly be extended outside Germany without much further organisation.

Similarly by being forced to open up factories abroad, Germany, as represented by Junkers, has established air connections in practically every European country.

Great Britain has repeatedly tried to open up a London-Berlin and a London-Prague service, but Germany has intervened and has insisted on a just interpretation of the "Nine Rules." Similarly France has been compelled to give up flying over Germany to avoid repetition of the confiscation of aircraft and the payment of fines. It will be seen therefore that if the "Nine Rules" are rescinded Germany will have everything to gain and nothing to lose.

With her net-work of lines radiating from the geographical centre of Europe, Imperial Airways with its modest London—Amsterdam—Cologne route and less than twenty aircraft and the French Compagnie Internationale de Navigation Aerienne (late Franco-Roumaine) with its Paris—Strasbourg—Prague—Warsaw service, which at the moment skirts Germany via Zurich, Innsbruck and Vienna, will be faced with well-organised competition which will be hard to combat.

THE DEATH OF COLONEL CASSE.

Colonel Gilbert Casse, Chief of the *Service de la Navigation Aérienne*, died suddenly on Oct. 31, at the age of 46.

He took his brevet in 1910 and became a military pilot in 1911. In 1914 Capt. Casse, as he then was, commanded the Aviation School at Pau. From there he became assistant to Col. Dhé, Director of Military Aeronautics at the *Ministère de la Guerre*, where he remained for some years. At the Armistice he commanded a Groupe de Bombardement.

In 1919, attracted towards civil Aviation, he became *Chef de Cabinet* to M. P. E. Flandin, then Under-Secretary of State for Air, and in 1922, on the retirement of Col. Saconney, he became Chief of the *Service de la Navigation Aérienne*. Since then he has, with tact and a strong hand, done well for French commercial aviation, fighting hard against unproductive undertakings and political interference. His death at a comparatively early age is a loss to French Aviation.

He is succeeded by Commandant Camerman, *Ingénieur en Chef de l'Aéronautique*, and assistant director of the *Service de la Navigation Aérienne* since 1920.

Commandant Camerman has the distinction of being the first military aviator to be breveted as such—on Mar. 8, 1910. As an aviator, an engineer, and with his long experience of civil aviation under Col. Casse, he is amply fitted to carry on the task of developing French Commercial Aviation.

A NEARLY ROUND ENGLAND FLIGHT.

Apparently The Aeroplane was a trifle previous last week in reporting that the English Electric Company's metal-hulled Kingston flying boat with its twin-Napier engines had arrived at Cattewater, the Plymouth seaplane station.

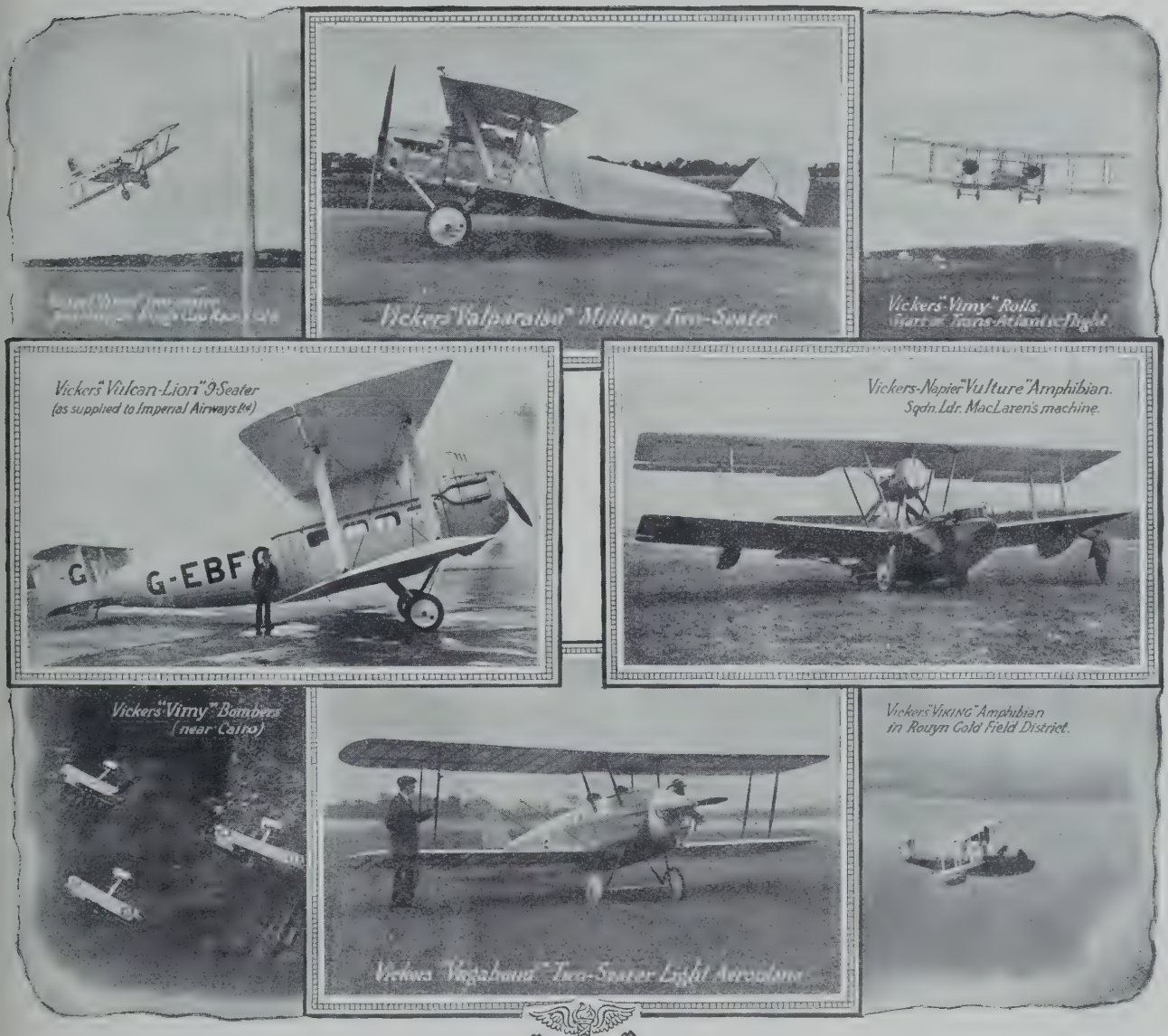
The facts are that the Kingston left Lytham at 08.45 hours on December 12, passed Pembroke Dockyard at 11.15 hours, and alighted at Cattewater at 13.33 hours.

The Kingston left Plymouth on Monday morning and alighted all well at Felixstowe at 15.00 hours.

The total distance is approximately 800 miles. Mr. Manning the designer, Mr. Knight the works manager, and Mr. Gaunt, his technical assistant, all deserve to be congratulated.

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THE ROYAL AIR FORCE.

The London Gazette

Dec. 8.

GENERAL DUTIES BRANCH.—Lt. J. F. Fosbroke Pain, 1st King's Dragoon Guards, is granted a temp. comn. on seconding for four years' duty with the R.A.F. (Nov. 28).

The following are transferred to the Reserve:—Class A.—Wing Cdr. J. P C. Sewell, O.B.E. (Dec. 5). Class B.—Flg. Off. J. Durward (Dec. 7).

Plt. Off. D. T. H. Hooke relinquishes his S.S. comn. on account of ill-health (Dec. 9); Plt. Off. P. K. Copperthwaite resigns his S.S. comn. (Nov. 25). The S.S. comn. of Plt. Off. on probation H. B. M. Barton is terminated on cessation of duty (Dec. 9)

ACCOUNTANT BRANCH.—The following Plt. Offs. on probation are confirmed in rank and are promoted to the rank of Flg. Off. (Nov. 10):—C. E. Aston, H. J. Titherington, C. F. Goatscher, C. Lorimer, E. Smith.

RESERVE OF AIR FORCE OFFICERS.—A. M. FitzRandolph is granted a comn. in Class A, General Duties Branch, as a Flg. Off. on probation (Dec. 8); R. C. H. Joy is granted a comn. in Class AA, General Duties Branch, as a Plt. Off. on probation (Nov. 23).

The following are confirmed in rank:—FLG. OFF.—J. E. A. Hoare, D.S.C. (Oct. 1). PLT. OFFS.—J. D Sinclair (Nov. 5); E. J. Dilnutt (Dec. 2).

Flg. Off. J. R. Astin is transferred from Class A to Class C (Nov. 28).

Appointments.

Week ending Dec. 14.

GENERAL DUTIES BRANCH.—Wing Commander D. S. K. Crosbie, O.B.E., to No. 4 F.T.S., Egypt, pending taking over command, 20/11.

Squadron Leader D. F. Stevenson, D.S.O., M.C., to No. 6 Sqdn., Iraq, 13/11.

Flight Lieutenants T. C. Luke, M.C., to H.Q., Iraq, 1/11. M. F. Browne, to Engine Repair Depot, Egypt, 24/11.

Flying Officer C. Lloyd, to No. 208 Sqdn., Egypt, 21/11.

STORES BRANCH.—Flying Officer W. Liniker, to Engine Repair Depot, Egypt, 24/11.

ACCOUNTANT BRANCH.—Pilot Officers—The undermentioned Pilot Officers are all posted on appointment to Permanent Commissions (on probation) to No. 1 Stores Depot, Kidbrooke, with effect from 7/12:—D. C. Stone, C. L. Dook, H. R. Withers, A. E. Fairs, M.C., J. P. Cave, D. Sender, J. A. Stephenson, A. L. Derry, K. A. Jackman, W. F. Quilliam, J. Lambie, H. Crowther, R. Cassels.

LEGAL BRANCH.—Flight Lieutenant D. L. Ingpen, to H.Q., Egypt, 20/11.

Aircraft Apprentices and the Association of Mechanical Engineers.

The following interesting news is taken from the Christmas, 1925, number of the *Halton Magazine*:—

A scheme for the admission of ex-Aircraft Apprentices to the roll of members of the Association of Mechanical Engineers is under consideration.

At present those who pass out with 80 per cent. in the Shops and 60 per cent. in the Final School Examination can be admitted without examination to the "Studentship" category. In future this will be indicated in the result lists.

For first and second entry Apprentices, application should be made to the Air Ministry for a Certificate of Qualification by those who passed out as L-AC. and who got 60 per cent. in the School Examination.

The R.A.F. Club.

The Royal Air Force Club will be closed for the Christmas Holidays from midnight on Christmas Eve until 8 a.m. on Dec. 28, except in so far as affects bedroom accommodation (with breakfast only) to Residents and Members who have engaged bedrooms prior to noon on Christmas Eve. A few bedrooms only will be available for the use of Members passing through London on Sunday night, Dec. 27.

The Halton Light Aeroplane Club.

According to the *Halton Magazine* for Christmas, 1925, a Light Aeroplane Club has been formed at Halton. For over a year a few enthusiasts from the School and Shops have been putting their heads together and have now produced plans for the building of a light aeroplane suitable for entry at Lympne next autumn.

A meeting was held at Halton on Nov. 30 and the Club was definitely formed. The actual building work has now begun and tests are being carried out on completed parts.

An R.A.F. Association of Shanghai.

An Association has been formed at Shanghai to be known as the Royal Air Force Association of Shanghai with headquarters at No. 1 Foochow Road, Shanghai.

The objects of the Association are described as follows:—

(a) To bring together Active or Past Members of any of the British Flying Services, i.e., Royal Naval Air Service, Royal Flying Corps, or Royal Air Force, including the Independent Air Force. The term British shall include all its Colonies and Dependencies.

(b) To bring together Active or Past Members of any other British Service who have at some period been seconded for duty other than flying with any of the Flying Services.

(c) To be a centre of action, information and advice in all matters pertaining to the use of Flying Machines of all kinds and any relative interests.

(d) To take such steps as will promote and further the interests of Aviation generally, but more especially British interests, in China and the Far East.

(e) To own, or hire, as funds permit, Flying Machines of all kinds for the use of Members of the Association. Such Machines to be used solely for pleasure purposes, except by permission of the Shanghai Municipal Council and/or H.B.M. Consul-General in Shanghai, when such machines may be devoted to defence purposes in the Settlements of Shanghai against aggression by an enemy of the International and French Settlements of Shanghai, or for such other purposes as the Association in General Meeting shall decide upon.

(f) To own, or rent, as funds permit, an Association Headquarters.

(g) To perform any act which in the opinion of the Committee is deemed an essential benefit to Members and/or ex-Members of the Association.

The First Annual General Meeting of the Association was held on Aug. 14 and the following members were present: V. J. B. Holland (Chairman), J. G. Dyson, E. P. Hicks, G. E. Marden, F. Scarborough and R. N. Swann (Hon. Secretary), (Committee), C. M. Alport, D. C. Burn, H. Bland, J. E. Browning, T. A. Buckley, T. Crosthwaite, L. G. Day, W. A. Elliot, A. P. Finch, R. A. Fawcett, H. B. Gubbins, A. R. Jones, G. D. Lane, G. Morriss, A. E. Nobbins, H. S. Openshaw, C. F. Pulman, W. A. G. Price, C. M. Reece, J. D. Shotter, B. E. Sugars, W. C. Walker and R. W. Wingrove.

Mr. J. E. L. Hunter was elected President for the remainder of the year, Mr. W. R. McBain having been compelled to resign owing to pressure of business.

The membership at the date of the General Meeting had reached 120.

Ex-R.A.F. in Jersey.

The first dance organised by the R.A.F. Association of Jersey was held at the Crystal Palace Hotel, St. Heliers, on Dec. 4. Nearly 100 members and their friends attended, and spent a most enjoyable evening. The ballroom was decorated in the colours of the R.A.F. The non-dancers played whist in an adjoining room.

A presentation was made during the evening by Mr. and Mrs. W. H. Brough, on behalf of the Association, of a clock, suitably engraved, to Mr. J. C. C. Taylor (Vice-President) on the occasion of his marriage.

The proceedings ended with everybody joining in some old pre-war dances and the local midnight curfew law came into force only too soon.—V. S.

The Halton Magazine.

The final instalment of Wing Cdr. Read's interesting travel article, "By the White Nile and Across the Belgian Congo," appears in the Christmas number of the *Halton Magazine*. Wing Cdr. Read's article is illustrated with a number of photographs of the trip, which, although necessarily very much reduced in size, are remarkably clear.

A special sports supplement also appears in this number showing the champion teams of all the various sports at Halton.

Malta, where the H.Q., R.A F. Mediterranean, an R.A.F. Base at Calafrana, and the base for H.M. ships *Eagle* and *Hermes* are stationed, is described and illustrated by Capt. F. E. Cox, Education Officer to the Mediterranean Area.

Mr. A. B. Elliott, who was engineer in charge of the flight by Mr. Cobham and Sir Sefton Brancker in 1924, describes the expedition from the engineer's point of view, an interesting one considering the valuable part Mr. Elliott is known to have played.

A real Christmas touch is supplied by a coloured woodcut which gives an excellent impression of the Wembley Tattoo. The artist, Mr. C. N. Heath, describes the method of producing this work.

The humorous part of the magazine is on a distinctly higher level than in the previous issues. A. F. S. C.'s remarks have been noted with thanks and passed to G. D. for information and necessary action.—C. M. MCA.

Co-ordination of the Fighting Services.

Field Marshal Sir William Robertson presided at the Royal United Service Institution on Nov. 18, when Major-General Sir John Davidson, M.P., gave a lecture on "Imperial Defence and the Co-ordination of the Three Services."

Sir John Davidson said that the advent of the Air Arm had brought many technical difficulties in its train. He went on to discuss the defence of the British Empire from all the various points of view, which are only too well known to the readers of THE AEROPLANE and *Hansard*. He reiterated, for the benefit of his more ignorant hearers, the old arguments for and against the Third Arm, which have been threshed out and disposed of, if not buried, in at least a hundred different places.

In conclusion, Sir John said that a Minister of Defence was advocated in some quarters. There were, however, strong arguments against setting up such Ministry. What, in his view, was essential, was that there should be a special operations staff on which all the Services should be represented.

Sir William Robertson, in closing the proceedings, said that all modern wars, and especially the last one, showed the necessity of having at Government Headquarters, in time of war, efficient machinery for directing and controlling the operations as a whole in all their many and varied ramifications. At the beginning of the Great War the machinery we had consisted of the Cabinet, the Committee of Imperial Defence, the General Staff, and the Naval Staff. How was it used?

On Aug. 5 a Council of War was summoned to decide what troops should be sent to France and where they should go when they got there. It was attended by about 20 Cabinet

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Ministers and seven soldiers and by some sailors also. It was not surprising that there was considerable disagreement between these many authorities as to what should be done. Later the greater part of the General Staff went to France, the Committee of Imperial Defence fell into abeyance, and the only definite machinery left for the time being was the Cabinet itself.

The Cabinet on Aug. 5 formed a Sub-Committee of the Committee of Imperial Defence, which was given the name of "Joint Naval and Military Committee for the consideration of combined operations in foreign territory."

Departments of State acquired during peace the habit of having wars of their own, and this was continued in the Great War, the result being that by the spring of 1915 they had the following situation: The War Minister, supported by most of the soldiers, was striving for decisive results on the Western Front. The First Lord of the Admiralty was initiating an expedition for the capture of the Dardanelles and Constantinople. The Secretary of State for India was conducting a campaign in Mesopotamia, with Baghdad as the objective. The Secretary of the Colonies was concerning himself with several little wars in Africa. Finally the Chancellor of the Exchequer was endeavouring to persuade his colleagues to withdraw the whole of the Expeditionary Force from France and send it to the Balkans.

A Service Diary.

[The Royal Air Force Pocket Book and Diary, 1925. Gale and Polden Ltd. Aldershot. 2s. and 3s. 6d. (Published by permission of the Air Ministry.)]

This diary, which is of convenient size, with space for notes of four days per page, has been prepared at the R.A.F. Cadet College, Cranwell.

It begins with a foreword by Group Captain H.R.H. the Duke of York, in which he says, "I am pleased to see, by many signs within the Service, that the Royal Air Force takes pride in its progress; though last in formation, it will never be content to be last in achievement among the other great Services of our Empire I look with confidence to all present members of the Service to build well on the foundation their predecessors have laid."

The R.A.F. Memorial Fund will receive 10 per cent. of the published price of every copy of this diary sold, and it is certain that a very large number will be sold because it contains some very useful information.

Among other things in this pocket book is a list of the theatres of war in which the R.A.F. has operated, R.A.F. Squadrons and the dates of their formation, World's Records and the winners of the various aviation trophies. The results of the R.A.F. sports and athletic events are also given and some useful tables of specifications of engines and rigging.

The Editor in a note says that any suggestions for improvement of the contents, the inclusion of dates, or of any other kind of information which it is considered should be embodied in this diary would be valued. All such communications should be sent to the Editor, R.A.F. Diary, c/o Gale and Polden Ltd., Wellington Works, Aldershot.

R.A.F. SPORTS AND PASTIMES.

Rugby Football.

WOOLWICH *v.* CRANWELL:—The R.A.F. Cadet College, Cranwell, was beaten at Cranwell on Dec. 12 by the R.M.A., Woolwich, by 21 points to 11. Two tries were scored for Cranwell in the first half, one of which was converted. In the second half Woolwich crossed over four times and Cranwell only once.

The R.A.F. Rugby Cup.

R.A.F., FARNBOROUGH, v. R.A.F., MANSION.—At Manston on the 9th inst. the home side defeated Farnborough by two placed goals and three tries (19 points) to nil.

The Manston forwards got most of the ball throughout the game, and the halves and centres outclassed their opponents in attack and defence.

Flt. Lt. Forrest, the Manston fly-half, was outstanding; he made no mistakes and seized every opportunity of opening up the attack. He was opposed by Flt. Lt. J. Chick, who was quite out of his element.

The Manston centres, AC. Meagher and AC. James, handled at full speed, ran straight, and in defence tackled low, and this combination of virtues undoubtedly won the game for Manston.

Tries were scored by AC. Meagher (3), AC. James, and Flt. Lt. Forrest.

R.A.F., UPAVON, v. R.A.F., GOSPORT.—Upavon beat Gosport at Gosport on Dec. 9 by 3 tries and a penalty goal (12 points) to a try (3 points). Upavon's team included the R.A.F. halves, Sq. Ldr. Russell and Flg. Off. Colquhoun.

Upavon were better in all departments, except at full back, where Lt. Cooper (R.N. and R.A.F.) fielded and kicked with remarkable precision.

R.A.F., WORTHY DOWN, v. R.A.F., NETHERAVON.—Worthy Down won by 5 points to 4. No details of the game have been received.

Boxing.

THE R.A.F. TEAM CHAMPIONSHIP: Division "A" 1st Series.

On Dec. 10, Flowerdown beat Netheravon by 14 points to 12.

OFFICERS.—*Welter*—Flg. Off. Thomas (Flowerdown) beat Plt. Off. Priestman (Netheravon); *Light*—Flg. Off. Scott-Taylor (Flowerdown) beat Plt. Off. Anderson (Netheravon); *Middle*—Flg. Off. Cohu (Netheravon) walked over.

AIRMEN.—*Bantam*—AC. Westerby (Flowerdown) beat AC. Field (Netheravon); *Feather*—AC. Carroll (Flowerdown) beat AC. Macmillan (Netheravon); *Light*—L-AC. Harvey (Netheravon) beat AC. Paine (Flowerdown); *Welter*—L-AC. Harvey (Netheravon) beat AC. Bell (Flowerdown); *Middle*—AC. Gregory (Flowerdown) beat AC. Berry (Netheravon); *Heavy*—AC. Nash (Flowerdown) beat AC. Lockyer (Netheravon).

Division "B"—1st Series.

On December 9, at Spittlegate (Grantham), No. 2 Flying Training School, Digby, beat Spittlegate by 11 points to 9.

OFFICERS.—*Welter*—Plt. Off. Young (Digby) beat Plt. Off. O'Hanlon (Spittlegate); *Middle*—Plt. Off. Merrett (Digby) beat Plt. Off. Worsley (Spittlegate).

AIRMEN.—*Bantam*—AC. Goddard (Digby) had a walk over as his opponent, AC. Field (Spittlegate), could not do the weight. These two boxed an exhibition. *Feather*—AC. Mark (Spittlegate) beat AC. Gray (Digby); *Light*—AC. Marshall (Spittlegate) beat AC. Devlin (Digby); *Welter*—Cpl. Davies (Digby) beat AC. Osbourn (Spittlegate); *Middle*—AC. Andrews (Spittlegate) beat AC. Groves (Digby).

THE AUSTRALIAN CITIZEN AIR FORCE.

With reference to the recently formed Citizen Air Force, a Reserve branch of the Australian Air Force, a correspondent of THE AEROPLANE states that the call for pilots met with success and that nearly 200 applications were received for the 30 vacancies offered.

ANOTHER CHANCE FOR THE ENEMY.

One always has to go away from home to get information about one's own affairs. The latest news, which will be balm in Gilead to the enemies of the Air Council, is that the Air Ministry has placed an order for a three-engined Fokker monoplane similar to that which Mr. Fokker himself flew so successfully in the Ford Commercial Airplane Reliability Tour.

The information about this deal comes from America. But judicious inquiry elicits the fact that the Air Ministry, presumably wishful to avoid another outcry about the purchase of American engines, is having British engines fitted to the machine in Holland.

This of course will take some of the sting out of the attack on the Air Ministry. But doubtless we shall have all kinds of questions in the House of Commons demanding to know why a Dutch aeroplane has been purchased when three-engined machines which fly have been built in England.

One trusts that in divulging this information one is not offending the Air Ministry's Secrecy Department. One feels sure that they must desire to put the three-engined Fokker on the Secret List in spite of the publicity which it has obtained all over the United States. After all it is an experimental machine so far as England is concerned, and it will doubtless be interned at Martlesham for at least a year after its arrival here.

AIR WAR IN THE HEDJAZ.

In an article on the War in the Hedjaz by Mr. H. St. John Philley, which appeared in *The Daily Telegraph* on Nov. 18 and was written at Jeddah on Oct. 19, the author describes the situation in Jeddah after the withdrawal of the Wahabis. He goes on to say:—

"Nevertheless, it can scarcely be denied that all its efforts to maintain the defence of Jeddah would have availed naught, had it not found in King Hussein a ready helper in the hour of need. In one way or another King Hussein has during the past nine months helped the Hedjaz Government to the tune of £130,000, one of his latest gifts being a flight of six D.H.9 aeroplanes, brand-new British machines fitted with machine-guns and bomb-racks, and well supplied with bombs—in which connection it is of interest to note that this welcome addition to the military strength of the Hedjaz has been secured through the medium of a German firm at Hamburg.

"The three machines purchased last year in England have all been written off, and the ineffective Russian personnel of those days has been replaced by four efficient German pilots, one German and one Russian mechanic, who have already made their mark. I had the good fortune to see two of these machines in action on the morning of Oct. 15, when the ss. *Borulos*, on which I came to Jeddah, was at anchor in Yanbu Harbour. Having bombed the Wahabi camp at Rabigh en route, they arrived at Yanbu at eight a.m., and one of them immediately went off to bomb the Wahabi position about eight miles south of the port. We could hear the loud explosion of its bombs and see the clouds of smoke and dust stirred up by them. The same evening the two machines returned to Jeddah."

[So far as one can gather the machines were supplied by a British firm, but the armament was presumably supplied by Germany.—ED.]

JUNKERS IN THE EAST.

On Dec. 8 a three-engined Junkers monoplane, carrying ten passengers, flew from Constantinople to Teheran. The route followed was via Angora, Malatia, Diabekr, Bitlis, Wan and Tabriz, involving flying over the Taurus mountains and the heights of Kurdistan and Armenia. The total distance of 1,172 miles was covered in 13 hours 55 mins.

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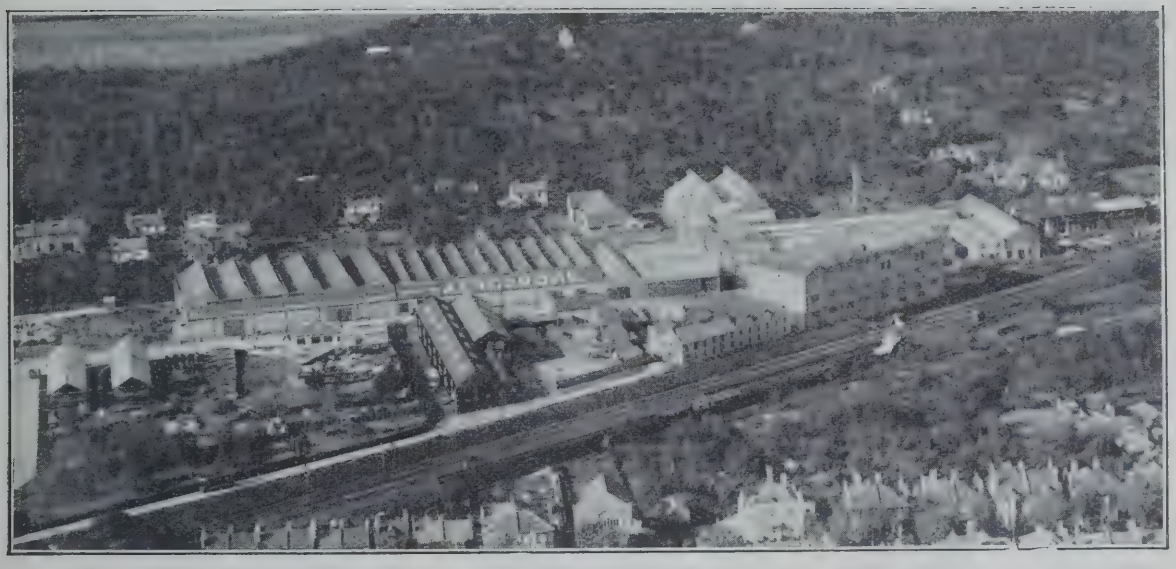
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RECORD CLIMB OF 19,500 FT. IN 11 MINS. 34 SECS.

(Machine in above events fitted with Napier Lion engine.)

THE LIGHT AEROPLANE CLUBS.

THE LONDON AEROPLANE CLUB.

Owing to the fog flying was only possible on three days and then only for short period. The total flying during the week was 8 hours 25 minutes.

Mr. G. T. Witcombe, pilot instructor, was still away and the whole of the instruction was done by Mr. F. G. M. Sparks.

The following members were given flying instruction :—H. Kennedy, R. C. Brighten, E. D. Moss, Col. Turner, E. K. Blyth, A. R. Ogston, E. S. Brough, N. Jones, R. C. Presland, J. S. M. Michie, J. H. Luxton, C. H. Gould, D. Kittell, Major Beaumont, C. H. Saffery.

The following members were flying solo :—Major Beaumont, Mrs. Eliott-Lynn, G. N. Warwick.

THE LANCASHIRE AERO CLUB.

Flying took place on Wednesday, Thursday, Friday and Saturday. Mr. Scholes gave dual instruction to A. Macnair (40 mins.), S. Crabtree (40 mins.), W. Caldcott (25 mins.), and J. Leeming (30 mins.). Mr. Cantrill to T. Wilkinson (35 mins.), A. Goodyear (1 hr. 20 mins.), H. Hardy (45 mins.), P. Colley (45 mins.), D. Tummers (20 mins.), A. Annable (15 mins.), and P. Michelson (20 mins.).

T Wilkinson made solo flights amounting to 50 mins. Tests occupied 40 mins. Dual 6 hrs. 35 mins., solo 40 mins. Total time flown : 7 hrs. 55 mins.

About fifteen enthusiasts waited on Sunday for the weather to clear, but these were the little band who are always in attendance and if they cannot be in the air seem to prefer sitting in a hangar to anywhere else. They are also there early and leave reluctantly after dark. A hot battle with snow balls took place during the afternoon and Mr. Stern, who was again clothed in his latest winter suitings, did some excellent shooting, eventually enabling his side to drive the Lacayo-Leeming forces into retreat.

THE NEWCASTLE-UPON-TYNE AERO CLUB.

Flying report for week ending Sunday, Dec. 13, 1925.—Flying times : G-EBLX, 6.19; G-EBLY, 13.12. Total, 19.31 hrs.

Instructional flying with Major Packman :—Messrs. J. D. Irving (3 hrs.), W. T. Walton (5 hrs. 18 mins.), G. H. Twine (15 mins.), J. A. Somerville (72 mins. (2 flights)), H. H. Leech (30 mins.), L. Smith (30 mins.), J. D. Bruce (1 hr. 30 mins.), C. B. Marshall (30 mins.), C. Thompson (35 mins.), W. Todd (30 mins.), J. M. Campbell (32 mins.).

Solo Flying : Mr. N. S. Todd (1½ hrs. (2 flights) Sunday), Mr. R. N. Thompson (20 mins.), Mr. W. M. Mackay (66 mins. (2 flights)), Mr. P. Forsyth Heppell (30 mins.).

Mr. Baxter Ellis flew with Mr. Heppell as passenger for 1 hr. 12 mins. on Thursday; for 30 mins. with Mrs. Waugh and Mr. Allan (2 flights) on Saturday; and for one hour on Sunday. On Sunday he took as passengers during one flight Mrs. Baxter Ellis and Master Herbert Ellis (aged 5 years). The Moth may therefore, in company with the D.H.51, be considered an "occasional three-seater." Master Ellis was obviously delighted with the experience, and on returning to the hangar made some very "grown up" remarks to the Engineer about ti all.

During the week Major Packman flew with the following ladies as passengers :—Mrs. Waugh, Mrs. Somerville, Miss Sheffield and Miss Jeffrey, the latter for 25 minutes. Miss Jeffrey is becoming a regular passenger.

Many strange aeroplanes have arrived at the aerodrome during the week. Mr. Ellis's (Gnosspelius) Gull on Wednesday and four Fairey IIID's landed for petrol on Friday. The Gull remained, but the Faireys left on Saturday morning.

As the quantity of petrol required to satisfy these monsters is equal to the consumption of the two Moths for two months at the present rate of flying, there was not sufficient for them at the aerodrome and by the time supplies were received, it was considered too late to proceed on the journey. Everyone was pleased to see these machines and the only "grouse" came from the Instructor, who said that an hour's flying had been lost through interest being transferred from Moths to Faireys.

Very few members of the Club have previously seen even a semi-cantilever monoplane. The remark about the wings of the Gull being attached to the centre section by "pieces of tin" prove this. The machine has only about four supporters at present and they are being subjected to quite a lot of abuse. Unfortunately, the machine has not been used for some time and has at present a rather dilapidated appearance and a lot of dust has accumulated in and on it, also one or two holes have arrived in the fabric, and perhaps, for the moment she does not look very pretty. Possibly it is best left at that . Mr. A. H. Bell spent Sunday in cleaning it up and receiving uncomplimentary remarks. Even Mr. Ellis prefaces his remarks by saying "if it flies." We must wait and see.

That perseverence gets there was proved in two ways on Sunday. Only two members of the Club had very good opinions of the "Self-starter" on the Moth, all along. On a previous occasion when the engine of one machine stopped, during a very severe side slip to the left, the lever was only pulled once, and did not start the engine.

During one of his flights on Sunday, Mr. N. S. Todd caused the engine to stop by side-slipping when throttled down. Being at a fair height, he tried a dive to re-start, without success. He pulled the lever once, nothing happened, the same on the second "pull," but the third effort was successful and he flew quite a long time after that.

One member who was being taught the effect of certain evolutions, during his training, felt that he wanted something to "hang on to." He seized the joy stick, but states that this cannot be the correct thing to do, judging by the remarks which came through the telephone from the Instructor.

G-EBLX was out of commission during most of the week, while the spare Cirrus engine was being fitted. The original engine (No. 13) will now be overhauled.

A record for one day's flying was made on Sunday by completing 7 hrs. 22 mins.

Following are extracts from the Club's first monthly circular to its members :—

"A considerable amount of flying has been carried out during the month of November, in spite of very bad weather conditions. The total number of flights was 179 (exclusive of engine tests in the air by the Instructor), and the machines were in the air for over 80 hours, 12½ hours being solo flying and 4 hours' flying by the only "A" Licensed member.

"Out of the 59 flying members of the Club, only 31 have, so far, flown. Had a larger number of these members attended the aerodrome much more flying would have been possible. Only one non-flying member flew as passenger.

"It is very satisfactory to record that not a single mishap occurred and no replacements at all were necessary.

"Mr. R. M. Stobie has received his Royal Aero Club Certificate and will have his "A" Licence in a few days. Mr. P. Forsyth Heppell has completed his tests and Messrs. W. H. MacKay, R. N. Thompson and N. S. Todd are all flying solo and making excellent progress.

"The Second Annual Club Dance was a complete success, and Club Funds will benefit by a considerable amount as a result.

"The Inauguration Ceremony on Nov. 21 was also very successful and has been the means of interesting a number of people in the Club and in Aviation who had not hitherto been associated with either.

"Whist Drives will be held on Jan. 13, 1926, and on the first Wednesday in each month afterwards.

"The three Classes of Membership will, in future, be more accurately named—Pilot Observer and Associate Members. The last at an Entrance Fee of one guinea and Subscription of one guinea. Associate Members will have similar privileges to Pilot and Observer Members, except that they may not fly. Associate Members may pay Entrance Fee on joining and Subscription on or before Apr. 1.

"A Dance will be held in the Club House on New Year's Eve. It is hoped that all Members will endeavour to be present at the Aerodrome at the beginning of what promises to be a very important year in the history of the Club.

"The Newcastle Office address is, for the present, 61, Quayside. Telephone No. 1397. Aerodrome Telephone, Cramlington 9."

THE YORKSHIRE AEROPLANE CLUB.

The activities of this club are still hampered by the difficulty of finding a suitable aerodrome.

THE MIDLAND AERO CLUB.

This club, in spite of requests for information concerning its doings, still preserves a secrecy worthy of the Air Ministry. But the following letter has been received :—

"The letter you published from Wynne Hassell has very little bearing on any of the observations I made.

"Firstly, I have not yet discovered the press reports printed 'from time to time.' The article on the race between Savage and Hassell was published *after* my letter had been despatched.

"Secondly, the social side of the Club up to the present has *not existed*. Except for *one Meeting* in the Summer there has not been any function such as a dinner, whist drive, dance or lecture to bring the members together and foster the right spirit, and I challenge anyone to deny this statement. The remarks that the social side is 'all that one could desire' passes my understanding, and is contrary to facts.

"Thirdly, I made no comment about the courtesy of the staff as any criticism would have been entirely unjustified. The paragraph devoted to this answers nothing.

"Fourthly, I am not such a perfect maniac as to suggest that people want to sit in '9 or 10 degrees of frost' and watch aeroplanes, but I fully maintain that the 'man in the street' should be admitted to the 'drome, the Enclosure to be provided *in order to enable him to get reasonably near the machines without wandering about.*

"Further, unless I am ill-informed, the gate was not shut by an Air Ministry Order, but with the Air Ministry's *permission*. A very different story. The Secret List policy is supreme."

THE ROYAL AERONAUTICAL SOCIETY.

A Special General Meeting of the voting members of the Royal Aeronautical Society has been called for Wednesday, Dec. 30, at 5.30 p.m., to receive the Council's recommendations for the revision of the Rules necessitated by the proposed regrading of the membership, alteration of subscription, and formation of branches.

The next lecture of the 61st Session will take place on Thursday, Jan. 7, at 6.30 p.m. in the Library at 7, Albemarle Street, W.1, when Professor A. J. Sutton Pippard, D.Sc., F.R.Ae.S., will read a paper on "The Experimental Analysis of Frameworks with special reference to the problems of Airship Design." The Chair will be taken by Air Vice-Marsrau Sir Sefton Brancker, K.C.B., A.F.C.

A Conversazione will be held in the Aeronautical Section of the Science Museum on the evening of Tuesday, Jan. 12, to celebrate the 60th anniversary of the Society's foundation.

(Signed) J. LAURENCE PRITCHARD.
(Honorary Secretary).

NEW TECHNICAL LITERATURE.

The Royal Aeronautical Society, The Journal of. No. 179, Vol. XXIX, November, 1925. Contents :—Notices; "The Lessons of Six Years' Experience in Air Transport," by Major-Gen. Sir Sefton Brancker; "Note on the Longitudinal Stability of Aeroplanes with Special Reference to Tail Plane Design," by W. L. Le Page; "The Flapping Flight of Birds," by Prof. Sir Gilbert Walker; "Reply to Major Gnosspelius," by Col. R. E. Fullerton. Price, to Non-Members, 2s. 6d.

The Royal Aeronautical Society, Journal of.—No. 180, Vol. XXIX, December, 1925.—Contents : Notices; "Air Surveys in Burma," by Major C. K. Cochran Patrick, D.S.O., M.C.; "Recent Progress in Flying Boat Design," by O. E. Simmons; Correspondence and Reviews. Price 2s. 6d. net.

The Aeronautical Research Committee, R. & M. No. 425.—Model Drogue Experiments. By G. S. Baker. Price 9d. net.

R. & M. No. 957.—Experiments on the Transmission of Air Waves Through Pipes. By L. F. G. Simmons and F. C. Johansen. Price 1s. net.

R. & M. No. 975.—Auto-rotation on a Model Aeroplane with Zero Stagger. By F. B. Bradfield and L. P. Coombes. Price 6d. net.

The Institution of Aeronautical Engineers, Minutes of Proceedings No. 17.—Contents : Photo-Elastic Methods of Measuring Stress, by Prof. E. G. Coker; Flying in Australia, by H. L. J. Hinkler. Price 1s. 6d. net.

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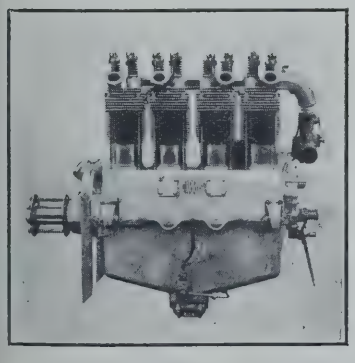
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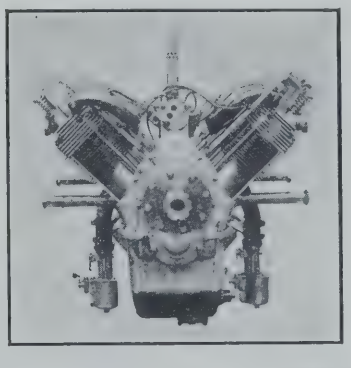
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K.S.V²

The result of the Schneider Trophy Contest has not unnaturally led to a great deal of discussion concerning the reasons why the American Curtiss Co. have been enabled to produce machines so very much faster than our own best efforts in that particular direction. Now the real reasons have publicly been expounded by various people in divers places, and they are familiar to the majority of those really interested in aviation. The essential reason is that the Curtiss Company have devoted an enormous amount of time, money, and concentrated well-directed effort to the one purpose of producing fast aeroplanes during the past four or five years, and consequently really know something about the problems involved in attaining speeds of between 200 and 300 m.p.h.

As regards this point there is a practical unanimity of opinon. When, however, one comes to consider why the actual Curtiss racers are as fast as they are rather than why the Curtiss firm has found out how to make these particular machines, there is a very singular, and, occasionally somewhat heated, difference of opinion in this country. It is nevertheless still true to say that the real reason for the high speed of the Curtiss machines has frequently been published.

Certain persons, however, refuse to believe in the truth of that reason. Most people will agree that the machines are fast because they are of low resistance—but many refuse to believe that they are of low resistance largely because they are fitted with engines having a very small frontal area for their power, and consequently possess a body of small section and low resistance.

Mr. Fairey, at the R.Ae.C. House dinner, put the case in a nutshell. The fundamental law of resistance in a fluid is our old friend $R = K.S.V^2$. K is a co-efficient of cleanness—the cleaner, and the better shape, the machine, the lower the value of K, and, other things being equal, the less resistance. S is the total frontal area involved, and V the speed. The lower one can make K—the cleaner the machine—the faster it will be. But ultimately—when we have attained the lowest possible value of K—the total resistance can still be reduced by reducing S, the area. Essentially the Americans have achieved their high speeds by making the cross-sectional area of their body the minimum that can contain a pilot, and by developing engines of the maximum possible power that will go inside that minimum body.

The case stated in this way seems not merely reasonable but unanswerable. Yet many still question the accuracy of this explanation. After Mr. Fairey's exposition at the R.Ae.C., at least two speakers frankly stated that they did not believe it.

On the same evening, at the meeting of the Royal Aeronautical Society which immediately preceded the Aero Club dinner, quite a number of speakers in the discussion on Mr. Fedden's paper concerning "The Installation of Air-Cooled Radial Engines," expressed their doubt on this subject, and suggested that the large diameter and the high drag of the exposed parts of an air-cooled radial did not appear adversely to affect the speed of aircraft, and that therefore that type of engine might successfully be used for machines of the racing class.

The argument was put forward that the air-cooled radial had in some cases been substituted for a clean water-cooled type, and the result had been found to be an increase in speed.

Here again is an argument apparently unanswerable. As a matter of fact, as is so often the case with arguments, appearances are wildly deceptive, and the argument is one based on false assumptions and on a failure to appreciate the very wide range of conditions which separate the 250 m.p.h. racer from the 120 m.p.h. aeroplane. The machines which have gained speed from the fitting of a radial engine of undoubtedly higher resistance than the original water-cooled installation, have invariably been relatively slow, and have none of them been designed for speed alone.

The relative importance of the different organs of an aeroplane as resistance-producing agents varies greatly with the speed of the aeroplane. At low speeds wing drag is a very large proportion of the total resistance. At higher speeds the wing drag becomes of less importance, because that part of wing drag which is necessary to the production of lift—the "induced drag," as it is called—does not follow the $K.S.V^2$ law, but is *inversely* proportional to the square of the speed.

As the wing drag decreases in importance the other organs producing resistance become of increased importance, and thus the body resistance of a moderate-speed machine may be a minor component of the whole, but a much more important item in the racing machine.

During a recent discussion at the R.Ae.S., Sir Sefton Brancker alluded to the D.H.50, fitted with a Jaguar engine in place of the standard Puma. Tests indicated that the performance with the Jaguar was consistent with the assumption that no increase in resistance had occurred.

The standard D.H.50, with the Puma engine, has a maximum speed of 112 m.p.h. Assuming an airscrew efficiency of 70 per cent., the total thrust available from 240 h.p. is 610 lbs. From published figures for wing area, weight, and so forth, it can be estimated that the total wing drag at this speed is just about 300 lbs., leaving 310 lbs. for struts, wires, tail, body and undercarriage.

The cross-section of the body is not far off 12 sq. ft., and its resistance at 112 m.p.h. will be something like 100 lbs.—or about one-sixth of the total resistance. It follows that for every one per cent. increase in body resistance, the total resistance will increase one-sixth of one per cent. The maximum body section is far larger than is required completely to enclose a Puma engine—it is actually greater than the frontal area of a Jaguar—and it would appear probable that the change in engine will not increase the total resistance of the body in anything like the ratio of the frontal areas of the engines themselves.

The Jaguar goes into a 44-in. diameter circle, which is about 1.4 times the area of the rectangle enclosing a Puma. If the body resistance increased in this proportion, or by 40 per cent., the total drag would increase by 6.6 per cent., and the speed at the power of the Puma would drop by a little over 3 per cent., or, say, 3½ m.p.h.—which is a change not easily measurable, except by very accurate methods of full-scale testing.

Now consider the case of a racing machine capable of 260 m.p.h. or so. The Curtiss R.2.C.1 (1923 Pulitzer Trophy type) is the nearest machine for which data are available. This machine's D.12a engine is said to have developed 520 b.h.p., and an airscrew efficiency of 81 per cent. would be required to give 610 lbs. thrust at 260 m.p.h. That is, there is no more thrust available for this case than for the D.H.50 at 112 m.p.h.

The total wing drag of this machine at this speed will actually be less than that of the D.H.50 at 112 m.p.h. The actual figure is doubtful, as data for the wing section are lacking, but it may be as low as 230 lbs—leaving 380 lbs. for the resistance of the rest of the aeroplane—instead of 310 lbs. for the D.H.50. All these remaining resistances do follow the $K.S.V^2$ law, and the ratio of the square of the D.H.50 speed to the square of the racing speed $\left(\frac{112}{260}\right)^2$ is 1/5.4. In other words, the non-wing resistance of the D.H.50 at 260 m.p.h. would be nearly 1,700 lbs., whereas that of the racer must not exceed 380 lbs. The racer therefore has to be of less than one-fourth the resistance of the D.H.50.

The body of the D.H.50, with a resistance of 100 lbs. at 112, would have a resistance of 540 lbs. at 260 m.p.h.—or much more than the total permissible for the racing machine. It is quite obvious from this that there is nothing that can safely be neglected in the racing machine in the direction of reducing resistance.

What is there that can be reduced? The racing machine obviously need not have so many struts and wires—but these items cannot be reduced below a fixed limit dictated by considerations of strength. And in any case they are of good form—and low resistance. Tail surfaces cannot be reduced beyond limits imposed by requirements of stability and control—and will certainly not come to one-fifth the D.H.50 area. One item—the landing wheels—can probably not be reduced at all, and at 260 m.p.h. these will represent a drag of not less than 30 to 40 lbs.—possibly a good deal more.

Thus, when all the cleaning up that is possible on these organs has been carried out, the body remains as one very large item. An aeroplane body unfortunately can never be of a very good aerodynamic form. Engines must have inlet and exhaust communication with the air, the pilot must have a cockpit opening and a wind screen, and these orifices and excrescences render the best body yet produced about three times as bad—from the resistance point of view—as a clean streamline that would enclose the whole. So far as bodies are concerned, there is not a lot to be done in improving the K of $K.S.V^2$. But however bad K, one can always reduce R by reducing S—in other words making the body as small as possible. And it is this that the Curtiss Company have done so successfully—by producing a power plant that will go into a body with a cross-section of about 6 sq. ft., which, nevertheless, develops 500/600 h.p.

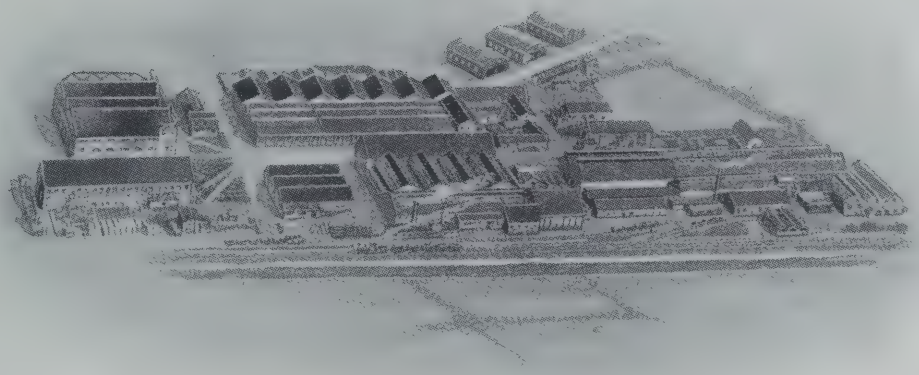
Such information as is available suggests that the resistance of the R.2.C.1 body at 260 m.p.h. is about 200 lbs. The cross-section is about one-half of that of the D.H.50 body, and the resistance at the same speed is about 37 per cent. of the D.H.50 resistance. In other words, they have reduced K only to about 75 per cent. of that of the slower machine by all the very careful cleaning up which has obviously occurred, and the reduction in area is the chief source of the reduction in body drag.

But in spite of all this reduction the body resistance in the racing machine is just about twice as great a proportion

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of the whole drag as in the case of the D.H.50, and each one per cent. change in body drag produces twice as great a change in the total resistance. A 40 per cent. increase in body area in this case would mean 13.3 per cent. change in total drag, and over 6 per cent., or more than 15 m.p.h., change in speed at the same power.

It is worth while to consider how the process of decreasing the resistance of high-speed machines might be carried still further by the process of cutting down body section. The 6 sq. ft. body section of the Curtiss does not leave much room round the pilot, but if adequate inducement, in the shape of a smaller engine, were offered, a smallish pilot could be put into an oval 32 ins. by 20 ins., with a sectional area of about 4 sq. ft.

If such a body were used of the same cleanness as the Curtiss body, its resistance would be two-thirds of that of the original—or 133 lbs. instead of 200 lbs. at 260 m.p.h. At the assumed airscrew efficiency, this would mean a saving of 57 b.h.p.—in other words an engine of 463 b.h.p. could be used in place of one of 520 b.h.p., and still give the original speed. Alternatively, if the same b.h.p. could be attained, the speed would increase by nearly 5 per cent.—or 13 m.p.h.

To attain the same result without reducing the body cross-section, would mean cleaning up the already clean Curtiss body to the extent of removing one-third of its resistance.

Smaller engines than those now in use are not by any means out of the question—there is in existence already at McCook Field an engine which develops 400 h.p. on a maximum diameter of 20 inches. This only requires boosting to 500 h.p. to render it capable of beating the D.12a.

On the other hand, consider the alternative of fitting an engine of large frontal area. Take the Jaguar with its 44 ins. diameter—which is 10.5 sq. ft. Suppose that it can be put into a body of that cross-section which is as clean as the Curtiss. The body drag at 260 m.p.h. will rise to 350 lbs.—and this will absorb an extra 128 h.p. or so. The air-cooled installation should be lighter than the water-cooled type—by, perhaps, 200 lbs., mainly in water and radiators. This will permit a 10 per cent. reduction in wing area for the same landing speed—and a 10 per cent. reduction in wing drag—a saving of 23 lbs. at 260 m.p.h.—or about 20 h.p. Perhaps a little more might be saved on other items.

On the whole, therefore, the radial of 44 ins. diameter will need to develop 100 more h.p.—say 620 b.h.p.—to equal the performance of the D.12a—which, again, will require some doing.

It will of course be understood that these arguments apply solely to the speed machine alone. At the speeds attained by modern racers weight per h.p. only affects the performance indirectly by fixing the minimum wing area required for landing at a definite speed. The power used directly in supporting the machine in the air is very small indeed, and the speed is limited by drag per h.p.

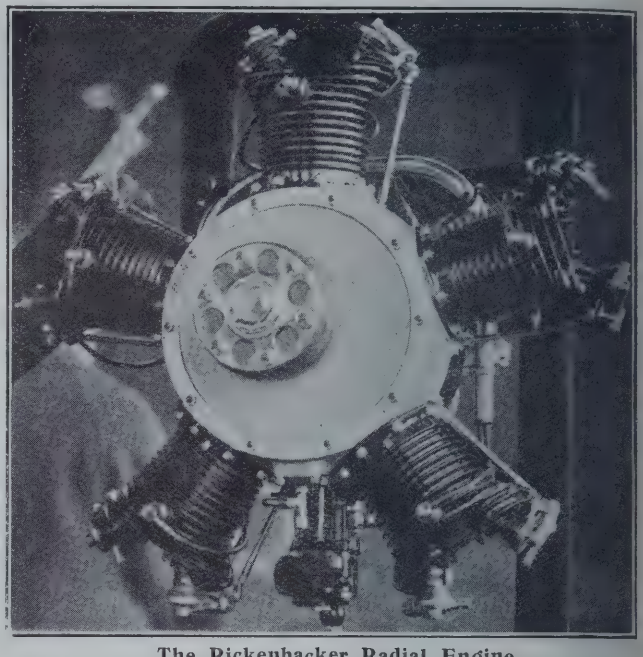
As soon as questions of climb, speed at heights, and extreme manœuvrability enter into the question, weight per h.p. becomes of much more direct importance, and for the much more limited speeds of even the Service single-seater, a saving in weight per h.p. will go further towards compensating for increased body drag than in the racing machine.

For cases of machines of speeds under 150 m.p.h., where load capacity, climb and general all-round performance can be accepted as adequate value for a small decrease in top speed, the light engine, even if it entails high resistance, will score. In other words, there is scope for engines of both types—but other things being equal, the small, compact engine will always beat the bulky one.

THE RICKENBACKER RADIAL ENGINE.

Capt. E. Rickenbacker, a pre-war American motor race driver, a war-time aviator, and a post-war motor-car manufacturer, has produced a medium horse power, radial, air-cooled engine for commercial use, to the designs of Mr. Glenn D. Angle, formerly of McCook Field Experimental Engine department.

Aluminium and duralumin are extensively used in its construction, the crankcase, gearcase and connecting rods being of duralumin and the pistons are of aluminium alloy.



The Rickenbacker Radial Engine.

The engine has not yet been installed on any aircraft and no details are to hand concerning any performance tests.

It is said to weigh less than 175 lbs. and is under 30 ins. in maximum diameter. The bore and stroke are 101.5 x 88.8 m.m., compression ratio 5, and horse power 60/80 at 1,620/2,400 r.p.m.

The engine was on view at the New York races in an exhibition hangar, and achieved a considerable amount of publicity by being photographed in company with a number of important American personalities.

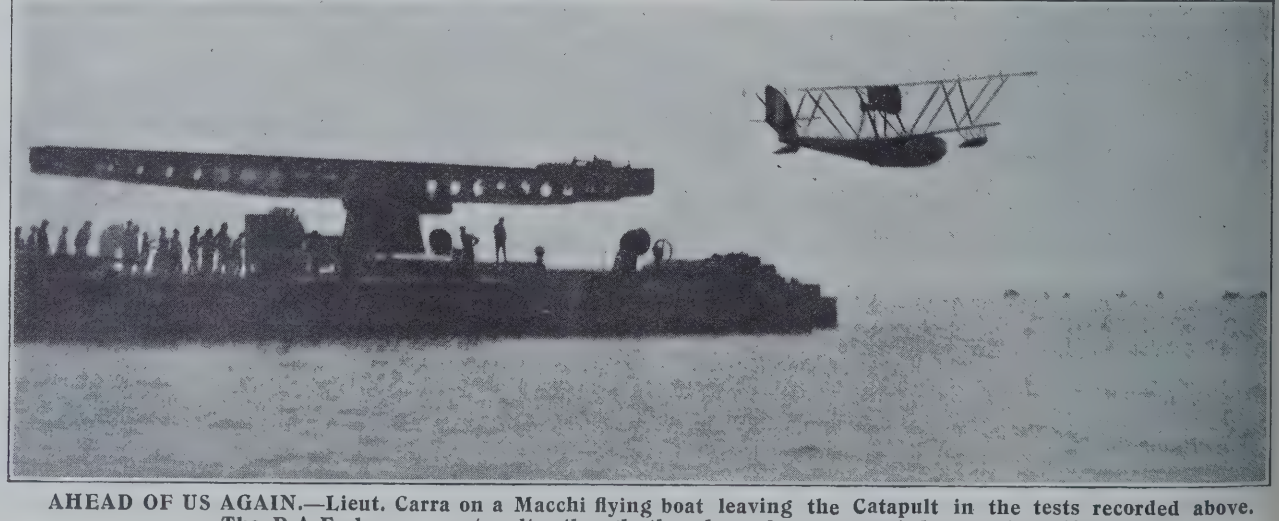
ITALIAN CATAPULT EXPERIMENTS.

The Italian Regia Aeronautica have recently carried out successful experiments in catapulting aircraft.

On Sept. 15, Lieut. Carra, on a Macchi flying boat, was successfully catapulted off a barge at Spezia on four separate occasions.

The apparatus is practically identical with that used by the U.S. Naval Air Service and has been developed by Signor Gragnotto at the Naval Arsenal at Spezia. The aircraft is "fired-off" by compressed air and in the initial run of about 45 feet it attains a speed of 62 m.p.hr.

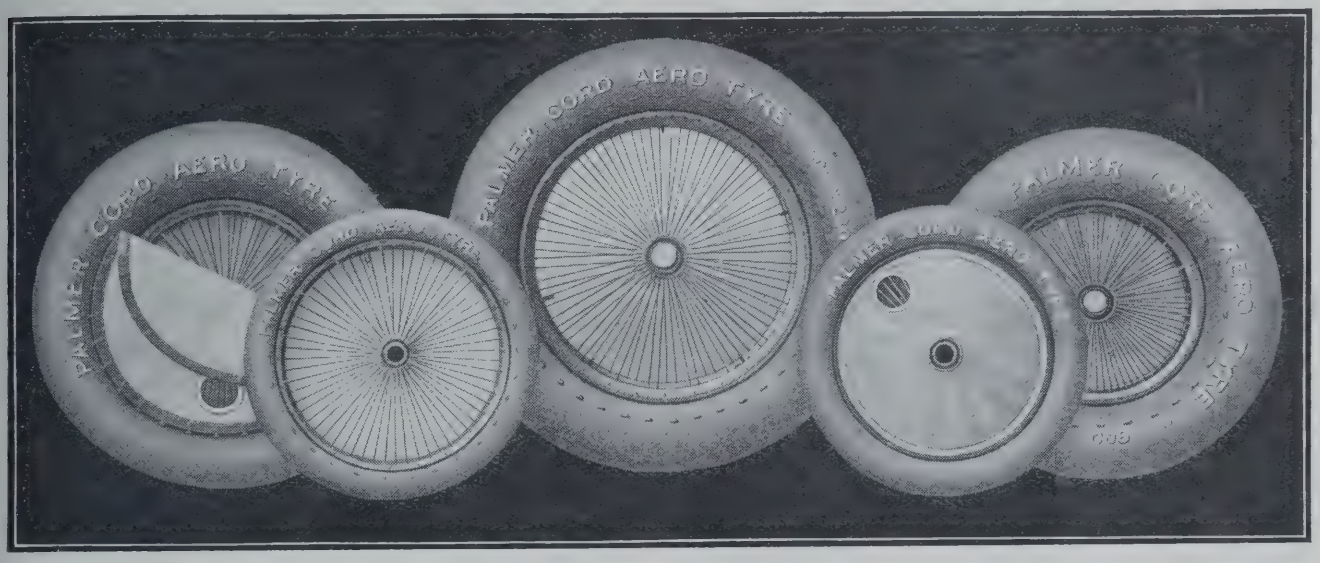
The interesting feature of the Italian experiments is that, for the first time, a flying boat weighing 3,000 lbs. has been sucessfully catapulted.



AHEAD OF US AGAIN.—Lieut. Carra on a Macchi flying boat leaving the Catapult in the tests recorded above. The R.A.F. have no catapults, though they have been suggested ever since 1914.

PALMER

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STANDARD SIZES.

Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line	Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line	Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m			m/m	m/m	m/m			m/m	m/m	m/m
375×55	168	111.12	25.4	Central	700×100	99	178.	38.89	132/46	1000×150	201	185.	60.32	125/60
					,,	112	150.	38.09	Central	,,	210	185.	60.32	Central
300×60	16	111.12	25.4	Central										
,,	17	72.39	12.7	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
					,,	147	178.	55.	Central	,,	149	185.	55.	Central
450×60	30	89.	31.75	Central						,,	155	220.	66.67	Central
,,	138	130.	38.09	Central	750×125	77	178.	44.45	132/46	,,	166	185.	55.	125/60
					,,	92	185.	55.	135/50					
575×60	21	160.	28.	Central	,,	95	185.	55.	Central	900×200	107	185.	55.	Central
,,	34	150.	31.75	104/46	,,	96	178.	55.	132/46	,,	108	185.	55.	125/60
,,	111	150.	38.09	104/46	,,	99	178.	38.89	132/46	,,	128	220.	66.67	Central
					,,	112	150.	38.09	Central	,,	137	250.	80.	Central
600×75	21	160.	28.	Central						,,	202	185.	60.32	Central
,,	34	150.	31.75	104/46										
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50					
					,,	85	185.	55.	Central	1100×220	134	220.	66.67	Central
700×75	78	178.	44.45	132/46	,,	161*	185.	55.	135/50	,,	136	250.	80.	Central
,,	79	178.	44.45	Central	,,	163*	185.	66.67	135/50					
,,	100	178.	38.09	132/46	,,	169†	185.	55.	135/50	1250×250	133	250.	80.	Central
,,	101	178.	31.75	132/46	,,	211*	185.	60.32	135/50	,,	154	304.8	101.6	Central
700×100	77	178.	44.45	132/46	1000×150	131	220.	66.67	Central	1500×300	115	304.8	101.6	Central
,,	92	185.	55.	135/50	,,	150	185.	55.	Central	,,	126	304.8	152.4	Central
,,	95	185.	55.	Central	,,	167	185.	55.	125/60					
,,	96	178.	55.	132/46	,,	174	250.	80.	Central	1750×300	139	400.	152.4	Central

Wheels Nos. 161, 163 and 211 are of stronger type than the other wheels for 800 × 150 tyres.
†*Wheel No. 169 is fitted with Ball Bearings.*

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THE CONTROL OF STALLED AEROPLANES.

On Thursday, Dec. 3, the Royal Aeronautical Society—or such of its members as took the trouble to attend—had the pleasure of hearing an extremely interesting paper on the Control of Stalled Aeroplanes, by Prof. B. Melville Jones—the Mond Professor of Aeronautics at Cambridge.

Prof. Jones has for long been a member of the Aeronautical Research Committee and for some years has been a member of the panel concerned with Stability and Control which has been dealing with this particular problem.

Prof. Jones, it will be remembered, lectured on the same subject some two years ago. Looking back on this paper the author states that he finds that he spent some time upon emphasising the importance of attaining control in the stalled condition. On this occasion he thought no such emphasis was needed, for the importance of the subject was generally realised. The urgency of the problem of producing aeroplanes with such control was however no less now than it had been then. The bulk of the aeroplanes flying to-day were not satisfactory in this respect, and now that methods of securing such control were known it was to be hoped that steps would be taken to make them so in the shortest possible time.

Prof. Jones stated most emphatically that in his opinion improvement in stalled control must not be used as an argument in favour of increasing the landing speed of aircraft.

Comparing the state of knowledge now and at the period of his earlier lecture. Prof. Jones said that to the question whether any progress had been made in the interim, the answer might be Yes or No, according to the view one took of progress. If one thought of progress as ceasing after the nature of the solution had been suspected, the answer was No. If, however, one measured progress by the extent to which knowledge could be applied, the answer was Yes—very great progress had been made. In 1923, it was not possible to draw any clear-cut conclusions as to how the existing knowledge should be applied. To-day the situation was different, and it was possible to present the present lecture in a much simpler form—not because the problem had become less complicated but because, being on surer ground, he could confine his attention to aspects of primary importance with some confidence that the simplified generalisations which he would employ actually represent the true facts.

Here the author made certain remarks which deserve to be given the widest possible circulation. He said :—

> May I be allowed to digress from the strict letter of my subject and to make a few semi-philosophical observations on the relation between theory and practice. Whatever the layman or the non-technical Press may think, successful designers of machines and structures do not begin by covering sheets of paper with calculations involving x and y and the integral sign; they take the back of an envelope and a stub of pencil and sketch and plan in a very simple manner, calling upon their past experience and checking their ideas against a number of well tried "rules of thumb." So used are they, indeed, to this process that they sometimes forget that the very rules of thumb which they use so easily, may be the condensed result of difficult and laborious researches and calculation. Therein I believe lies one of the root causes of the everlasting war which wages between the more ignorant designers and constructors and the more ignorant scientists. The former believes in his heart that all the rules of thumb which were in existence when he started to learn his trade were gifts from heaven, or the boiled down quintessence of a mysterious faculty called common sense, which he arrogates to himself alone. The latter considers that his semi-developed theories, based probably upon insufficient or faulty premises, should be applied immediately to practice, and he rails at the futility of the practical man who does not immediately apply them. (In making these remarks I am, of course, safe from reprisals; for I insult no single individual, because no individual will ever admit that he belongs to an ignorant class, either of designers or scientists.)
>
> It may be said then that the test of whether a research has reached a stage at which it becomes of real practical value lies in the possibility of reducing its conclusions to simple "rules of thumb," capable of direct application to practical design. I have held this view about the relation of theory and practice for many years and I still hold it, so that I have found it interesting to test the state of the research under discussion, by attempting to define its main results in the form of two statements, which are sufficiently simple and general to be elevated to the exalted rank of "rules of thumb."

Prof. Jones' two "rules-of-thumb" for the control of the stalled aileron are :

> (1) To provide ailerons which can exert a sufficient moment about an axis passing through the centre of gravity of the aeroplane, inclined through a sufficient angle downwards and forwards from the mean chord of the wings.
>
> (2) To provide a rudder of sufficient power.

Conventional ailerons provide a moment about an axis inclined *upwards* and forwards through angles from 15° to 30°—in other words their effect is to cause the wing-tip which they tend to lift to move backwards and thus to yaw the machine in an undesired direction. The maximum moment produced by these ailerons could be represented numerically by a coefficient of about 20. Such a control was practically useless in a stall.

At the other extreme a combination of Handley Page slot on the leading edge, and of Bristol Frieze ailerons, will give a moment of about 35 in the same units about an axis inclined *downwards* and forwards through from 10° to 15° from the wing chord—that is, cause a yaw in the opposite direction to that caused by normal ailerons.

Pushing this device to the limit a moment of about 60 about an axis parallel to the chord could be produced.

Tested in flight this device had proved satisfactory. The pilot could roll a completely stalled aeroplane rapidly from side to side, could right it after stalling in a complete turn and could instantly stop a full spin—not only without using rudder but often with the rudder set against recovery.

Here were extreme cases of devices, on the one hand entirely unsatisfactory and on the other entirely satisfactory. Time and experience alone would permit of deciding whether some intermediate arrangement would be satisfactory for general purposes.

Interpretation of "sufficient rudder power" meant inquiring a little more deeply into the reason why a powerful rudder was desirable. The rudder is not required to produce yaw, as in normal flying, but to check yaw in an undesired direction. When ailerons were not used the yaw which the rudder was required to counteract was caused by rolling of the wings. The yawing moment due to rolling was definitely limited—and a definite value for the rudder power could be given which would suffice to restore the stalled aeroplane to an even keel by forcing forward the falling wing.

Rudder power fell off very rapidly in a stall because the rudder was shielded from the relative wind by body and elevators, and standard aeroplane rudders did not give nearly the required power at stalling angles. The S.E.5a was the only standard rudder which approached the requirements.

Generally a low fin and rudder which do not project behind the body or are directly over a continuous elevator, are ineffective when the machine is stalled. This defect is accentuated if the body is short and thick, broad in plan near the tail, and has its upper line much curved downwards.

Provided attention were paid to these points in design, results of both model and full-scale tests suggested that the "rudder volume" was a sufficient criterion of rudder power, and for a normal type of aeroplane, where the distance of fin and rudder behind the C.G. was approximately equal to the semi-span of the wings—adequate rudder power was given by a fin and rudder whose area was 5 per cent. of the wing area. (This applies to the thin-winged biplane. Wings tapered in chord and camber to the tip should need smaller rudders—wings with heavy camber at the tips may need larger ones.)

The fact that an adequate rudder will control an incipient spin, and is recommended in any case, may lead to the inquiry why special ailerons should be fitted. The answer is that although either the rudder or the special aileron will control the incipient spin, either alone leaves the pilot in incomplete control. The rudder only controls the roll indirectly, through the medium of a turn or yaw, and it may be undesirable to turn in that direction. The special ailerons will roll the machine in the required direction, but can only be used indirectly to cause a turn.

Given both controls, the pilot has practically equal control, stalled or not.

A drawing of the slot and aileron control used on the Avro were shown. The author remarked that it did not look a suitable arrangement for high-speed aircraft, but, in fact, its effects were not nearly so marked as might be expected. The effect on the performances of the standard Avro was less than the probable error of full-scale measurement. It was, however, only a first attempt, in which neatness of design was a secondary consideration.

In conclusion the author referred to the long period of five years which had been expended on this research. He was personally quite unmoved by the criticisms of those who said that the whole could have been completed in a year or so—these could arise only from ignorance of the complexity of the subject. The Aeronautical Research Committee had recognised from the first the importance of the subject, and had issued all the available information to the Air Ministry and to designers as soon as its reliability was established. He did think that it would have been possible to save a year or so—the retarding factor was the rate at which full-scale research could be carried on. Delays here arose not from any fault of individuals or of the R.A.E., but from the economy campaign of some years ago.

COMPANY NOTICES.

Harrogate Aerodrome and Land Development Ltd.—Satisfaction in full on July 1, 1925, of mortgage dated Mar. 4, 1922, securing £11,000.

Portholme Aircraft Co. Ltd.—E. A. Harpham, of Commercial Trades' Protection Association, 133, Finsbury Pavement, E.C.2, ceased to act as Receiver or Manager on Sept. 17, 1925.

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ANOTHER PEACE-GIVER.—The Yeovil Bomber (Rolls-Royce Condor engine), built by the Westland Aircraft Works.

A FEW CORRECTIONS.

The following letter corrects certain inaccuracies among the many rumours which have reached this country among the stories of the Schneider Trophy Contest :—

"Not in any critical vein, but merely as one editor to another, and because of my knowledge that you want as much as you can get of what Walter Page used to call 'The truth in its proper use,' I want to refer to two items published in recent copies of THE AEROPLANE concerning Schneider Trophy matters.

"In one article you reported an episode in which the United States Army is alleged to have suggested to the United States Navy that the Navy ships did not have sufficient gas capacity for the Schneider Trophy Race, and further intimated that the Navy ships failed for lack of gas.

"This story is pure imagination. The three ships were exactly alike. Neither Army nor Navy technical sections nor operating divisions paid any attention to the designs, which were purely Curtiss. All three had the same tanks, the extra tanks for the Schneider Trophy Race as against the Pulitzer Race being built in exactly the same way. Both services took the ships entirely on faith.

"Neither of the Navy failures in this race was due to lack of petrol, both being due to minor mechanical failures such as can always be expected in experimental motors, one being a magneto coupling failure and the other a small centering pin, the failure of which let the oil out.

"In another article you commented upon the fact that the British propellers do not seem to be quite up to standard and ascribed this to the possible failure of the Curtiss Company to supply Mr. Fairey with the latest design.

"The Curtiss Company does not supply Mr. Fairey with propeller designs. Mr. Fairey is a licensee under the Reed patents just as the Curtiss Company is, and the Curtiss Company has nothing whatever to do with the British propeller designs. You may be very sure that if the Curtiss Company had a contract with anyone in Great Britain which called for the furnishing of our designs of propellers or other items we should fulfil the contracts.

"As a matter of fact, the design of the Curtiss propellers in the Pulitzer and Schneider Cup Race was so recent that there had been no time to have them fully tested by the military authorities and they were used without such test—again, very largely upon the faith of the two services in the soundness of our engineering conclusions.

"I also note with some interest the truly remarkable comments in the British papers on the importation of a few American airplane engines into England. This seems strange to me, coming from a nation which, above all others, seeks its great markets in foreign lands. If France and Holland should set up bars against the Jupiter, and if we in this country should refuse to buy Rolls-Royce automobiles, because they have an English ancestor, we should be merely interpreting into being the spirit of various English articles that have found their way over here.

"Personally, I don't believe for a minute these articles express the true English ideas about business at all, because they seem to me to be entirely foreign to the basis of 'Live and let live,' which made England the greatest trading nation that the World has known.

"Please pardon these too-frequent letters, the purpose of which is all in the interests of accuracy of information so that understanding may be broadened and facts may take the place of guesses between us." "(Signed) C. M. KEYS."

[One can assure Mr. Keys, on behalf of the readers of THE AEROPLANE that his letters cannot be too frequent, because they always convey "the truth in its proper use" to a community which is a trifle apt to swallow rumour with avidity.—C. G. G.]

NEW U.S. AIR MAIL ROUTES.

On Sept. 15 the U.S. Post Office Department opened bids for contract Air Mail Services under a law passed by Congress early this year.

Eight routes were suggested by the Post Office as follows :—Los Angeles—Seattle, 1,150 miles; Salt Lake—Los Angeles, 620 miles; Elko—Pasco, 445 miles; Chicago—Fort Worth—Dallas, 1,000 miles; Chicago—St. Paul—Minneapolis, 352 miles; New York—Boston, 190 miles; Chicago—St. Louis, 275 miles; and Birmingham—Chicago, 630 miles.

In all nineteen bids were tendered and so far five contracts have been awarded to the following private contractors for the operation of five of the eight routes :—

Boston—Hartford—New York : Colonial Air Lines Inc., Naugatuck, Conn.

Chicago—Springfield—St. Louis : The Robertson Aircraft Corporation, St. Louis, Mo.

Chicago—Fort Worth—Dallas : The National Air Transport Inc., Chicago, Ill., who propose to use ten Curtiss Carrier Pigeon biplanes, four for daily use and six in reserve.

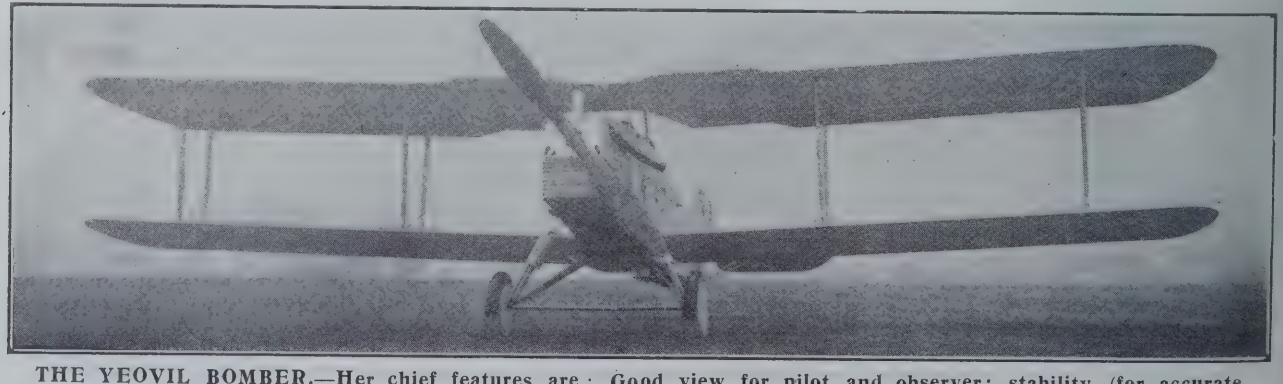
Salt Lake City—Los Angeles : The Western Air Express Inc., Los Angeles.

Elko—Pasco : Walter T. Varney, of San Francisco, Cal.

Seattle—Los Angeles : The bid of Vern C. Corst is still under consideration.

The Chicago—St. Paul—Minneapolis route and the Chicago—Birmingham route are still open for further bids owing to the fact that the original bidders for the former route, the National Air Transport Inc. and the General Airways System Inc. did not meet the specifications of the Post Office Department and in the case of the latter route the sole bidder, the General Airways System Inc., did not furnish satisfactory evidence as to its financial ability to make the route a success.

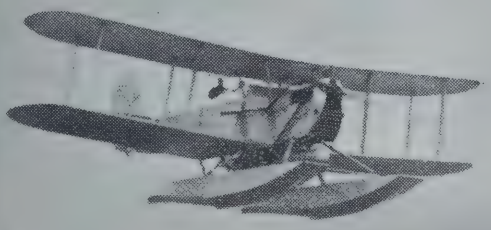
It is not yet definitely decided when the operation of these routes, which are designed to supplement the Air Mail Service already operated by the Post Office Department between New York and San Francisco and intermediate points, will begin.



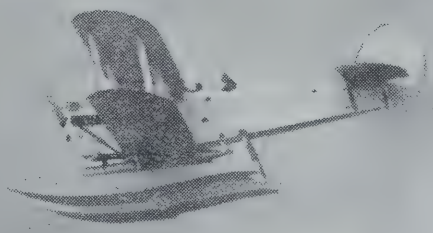
THE YEOVIL BOMBER.—Her chief features are : Good view for pilot and observer; stability (for accurate bombing); gravity feed of petrol from tanks in upper plane; oleo-pneumatic undercarriage with wide base.

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The Blackburn 'VELOS' seaplane is the outcome of 17 years experience and research.



Designed to carry a torpedo or bombs.
It has dual control and an interchangeable land carriage.



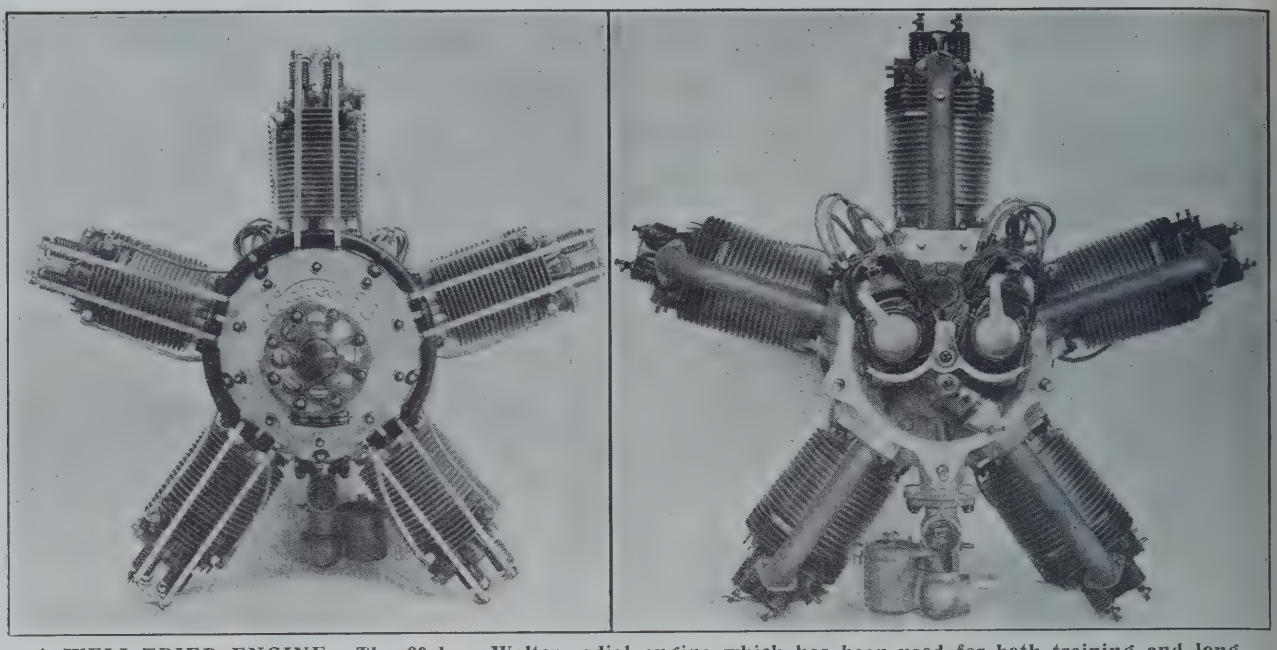




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THE WALTER AERO ENGINES.



A WELL-TRIED ENGINE.—The 60 h.p. Walter radial engine which has been used for both training and long-distance touring purposes. The Avia monoplane which won the 1925 Coppa d'Italia was fitted with this engine.

One of the most successful Czecho-Slovak aero-engines is the 60 h.p. Walter five-cylinder air-cooled radial engine constructed by J. Walter and Spol, of Jinonice, Prague.

The 60 h.p. model is used as standard in the Avia B.H.9, B.H.10, B.H.11 and B.H.12 monoplanes, and the Smolik S.18 biplane for school and touring purposes, both in the Czecho-Slovak Army Air Service and privately, and just recently the firm have put in hand the production of two higher horse-power engines of 85/100 h.p. and 110/135 h.p. Most of the components of the three engines are the same, the two new engines having seven and nine cylinders of the same type as used on the 60 h.p. engine. Each engine has steel, zinc-coated cylinders with aluminium fins cast on with a detachable cast-iron cylinder head. They are fitted with twin Scintilla magnetos, Solex carburettor, and a patented Walter plunger oil pump.

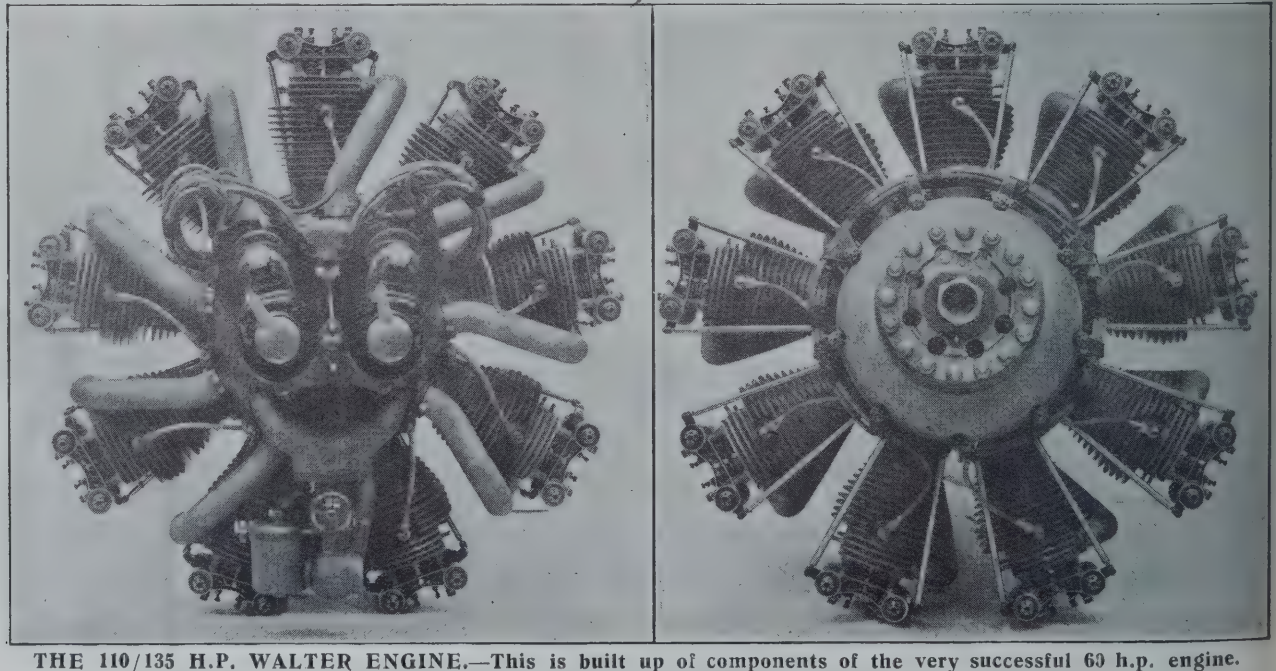
During 1925 the Walter Co. took over the licence to construct the Bristol Jupiter engine from the Laurin and Kiement Co., and a large order for the Czecho-Slovak Government has been put in hand.

The Walter Co. also construct two types of water-cooled engines, known as the 185/240 h.p. Walter-B.M.W. III and the 240/300 h.p. Walter-B.M.W. IV. Both are six-cylinder-in-line engines, of the well-known B.M.W. type. The 240 h.p. engine is used in the Aero 11 two-seater reconnaissance, and the Aero 18 single-seater fighter aircraft, both standard machines of the Czecho-Slovak Army Air Service. A standard Aero 18 so fitted holds the Czecho-Slovak duration record with 13 hours 20 mins.

At the 1924 Prague meeting a special racing Aero 18B won the President's Cup over a course of 200 kms. at a speed of 263 km.p.h. For this purpose the engine was completely modified, and fitted with double Solex carburettors and the patent Aero petrol pump. Thus altered the engine developed 325 h.p. at 1,450 r.p.m. The same engine, arranged to develop 220/240 h.p. at 1,400 r.p.m., is used in the Junkers F.13 monoplane and the D.H.50 commercial aeroplanes operating on the Czecho-Slovak commercial air lines.

Specifications :—

	60/75 H.P.	85/100 H.P.	110/135 h.p.
No. of Cylinders ...	5	7	9
Bore and Stroke ...	105×120	105×120	105×120
Normal r.p.m.	1,400	1,400	1,400
Normal output... ...	60 h.p.	85 h.p.	110 h.p.
Weight	100 kgs.	125 kgs.	146 kgs.
Petrol consumption per H.P. hour	.235 kgs.	.235 kgs.	.235 kgs.
O'l consumption ...	.016 kgs.	.016 kgs.	.012 kgs.
Maximum output ...	75 h.p/1750 r.p.m.	100 h.p./1,750 r.p.m.	135 h.p./1,750 r.p.m.



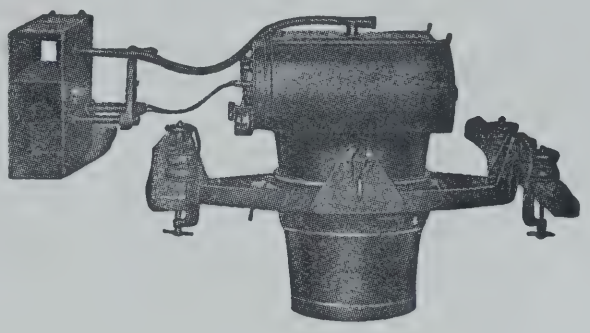
THE 110/135 H.P. WALTER ENGINE.—This is built up of components of the very successful 60 h.p. engine.

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Model K1

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FORD DEVELOPMENTS.

Apropos of the Ford Air Tour, to which reference was made recently in these pages, an inhabitant of Detroit, Mich., writes that although as stated in The Aeroplane Mr. Fokker's three-engined machine came in ahead of the other competitors at eight out of ten landing stations in the course of the Tour, this occurred largely because he was sent away ten or twenty minutes before the Stout all-metal airplane. This correspondent states that in spite of this the Stout metal airplane, with a single 400 h.p. engine, carrying approximately 1,000 lbs. of freight, beat the three-engined Fokker into two stations and on the total flying time at the end of the Tour led the 600 h.p. Fokker by 27 minutes. The official speed of the Stout monoplane for the entire run was 101 m.p.h., which is very handsome touring speed.

The general efficiency of the American pilots and machines may be judged from the fact that the finsh of the tour took place in as bad a rainstorm as the locality had had for months. Storm signals were up all over the country and the lights were being used in the factories most of the day. Some of the Detroit pilots made a bet that out of the sixteen machines in the contest twelve would fail to arrive on account of bad visibility. But at the appointed time the first machine hove in sight and within twenty minutes all but one machine were on the field safely, though the visibility was barely a mile.

The pilots said that but for the five-hundred-million-candle-power light rotating on the roof of the Ford shed it was doubtful whether they could have found the field. The one machine which did not arrive refused to start on account of the bad weather but later made an attempt. It was forced to land by darkness within five miles of the finish. The Tour was of particular interest because it was purely commercial without any Army or Government entries.

Next year's Ford Tour will be a contest on the basis of load, speed and fuel consumption. It will probably be run in three classes. Between 25 and 50 aeroplanes are expected to enter.

As regards the Ford Air Port itself there are now eight machines running a trip daily to Cleveland and back, and two trips daily to Chicago and back. As soon as a landing field has been prepared at Buffalo another line will start on that route. One of the machines has been used for purely experimental purposes for the development of new apparatus.

The Stout all-metal plant, now known officially as the Stout Airplane Division of the Ford Motor Car Co., has been at work for some time on the production of a three-engined aeroplane with the idea of assuring safety against forced landings. The first of these should be flying by this date.

AN INTERESTING TYPE OF ENGINE.

The Engineering Division, U.S. Army Air Service (McCook Field), have at present under experiment a very interesting and novel type of radial engine, which has been designed by Mr. Glenn D. Angle. The novel feature of this engine lies in the fact that instead of the conventional crankshaft and connecting-rod assembly, the pistons are fitted with a roller which engages with a central cam on the engine shaft. The shape of this cam is such that the piston makes four strokes per revolution instead of the usual two. On consideration it will be seen that under these conditions the pistons of two diametrically opposed cylinders will move in opposite directions in unison and all inertia force in the plane of motion will therefore be balanced.

Thus a completely balanced engine with an even number of cylinders can be produced. In fact it is proposed to develop the type in multiples of four cylinders.

Another point is that as the number of strokes is doubled, as compared with the crank-type of engine, the swept cylinder volume for a given bore and stroke is doubled. Consequently the stroke for a given output and speed can be reduced. Probably, also, length between piston-skirt and shaft-centre can be reduced. Consequently a radial of very greatly reduced diameter can be produced. Alternatively the engine r.p.m. can effectively be doubled without increasing the airscrew speed.

An experimental cam engine has been built with four cylinders, which develops 200 h.p. at 1,350 r.p.m., and 220 h.p. at 1,500 r.p.m. This engine is 40 inches overall diameter and weighs 405 lbs. No special effort has been made to cut weight as it was desired to test the scheme as cheaply as possible. The bore and stroke are $5\frac{3}{8}$ inches and $4\frac{1}{2}$ inches respectively.

The only serious difficulty foreseen with the type is due to the fact that as the pistons make twice as many strokes per revolution, as in the normal case the valve gear must function at twice the rate of that in a normal engine, and it is expected that the normal push-rod type of mechanism will be unsatisfactory and that a new type of valve gear must be devised

THE THREE-ENGINED JUNKERS TYPES.

The interest which has been aroused by the three-engined Junkers monoplane suggests that readers of The Aeroplane will be glad to have a clear statement as to the various types which exist. There are in fact four types, two for land and two for water.

The G.23L is the German edition of the land-going machine. This is fitted with one Junkers type L.2 engine, of 195 h.p., in the nose and with two Mercedes engines of type D.1, of 100 h.p. each, one on each wing. The total is thus 395 h.p.

The G.23W is the German edition of the sea-going machine, a float monoplane. This is fitted with a Junkers L.2 engine of 195 h.p. in the nose and a Mercedes D.IIIa engine of 160 h.p. on each wing. The total is thus 515 h.p.

The G.24L is the foreign edition of the land-going machine. This is built in Sweden, in Russia and in Turkey. This is fitted with three Junkers L.2 engines of 195 h.p. each. The total is thus 585 h.p.

The G.24W is the foreign edition of the float monoplane. This is fitted with the same engines as the G.24L and so has likewise 585 h.p.

AIR AFFAIRS IN PARLIAMENT.

HALTON.

In the House of Commons on Dec. 7, in reply to a question by Sir J. Power, the Secretary of State for Air said that the number of aircraft apprentices at Halton was 1,740, and of the instructional staff 253.

The medical staff at Halton Hospital consisted of nine officers and 94 airmen, but their duties were not confined to providing medical attendance for the school as the hospital was a central one for the whole of the Air Force.

CRANWELL.

In the House of Commons on Dec. 7, in reply to a question by Sir F. Wise, the Secretary of State for Air said that there were 103 cadets at Cranwell and the annual cost according to investigation carried out for the year 1923-24 was approximately £550, including all overhead charges, but excluding flying training.

R.A.F. HOSPITALS.

In the House of Commons on Dec. 7, in reply to a question by Brig.-Gen. Charteris, the Secretary of State for Air said that there were 1,586 equipped beds in hospitals under the Air Ministry and that the average daily number of patients in these hospitals during the current year was 528. He added that of the 1,586 equipped beds, 1,139 were in hospitals in Iraq and Palestine, which catered for the whole garrisons, i.e., Army as well as Air Force and British as well as Indian troops, and in Palestine the British Gendarmerie in addition.

It was necessary, he explained, to provide beds considerably in excess of the average occupation in order to cope with epidemics, casualties, seasonal illnesses and the special conditions under which the forces in the Middle East were serving, but their number was and would continue to be brought under constant review.

FATAL ACCIDENTS AND FLYING HOURS.

In the House of Commons on Dec. 9, in reply to a question by Brig.-Gen. Warner, the Under-Secretary of State for Air said that the number of aircrait hours flown per fatal accident from Jan. 1, 1925, to Sept. 1, 925, was greater by 92 per cent. than the figure for the corresponding period in 1924.

Replying to a supplementary question by Brig-Gen. Warner, Sir Philip Sassoon said that the diminution in fatal accidents was due to the general increase in efficiency. The initiation of a new system of training and the training of young pilots on new types of machines might have played a part.

Brig.-Gen. Warner: "Thank you. It is most satisfactory."

Mr. Hardie wanted to know if non-inflammable fuel was being used for aeroplanes.

BENTLEY PRIORY.

In the House of Commons on Dec. 9, in reply to a question by Sir F. Hall, the Under-Secretary of State for Air said Bentley Priory had been purchased by the Air Ministry for use as headquarters of the re-organised Inland Area, R.A.F. The total cost of acquisition and adaptation would be approximately £40,000. He added that the purchase and adaptation of these premises was the most economical method of providing the accommodation required.

PERSONAL NOTICES.

Death.

Reilly.—On Sept. 28, killed near the village Allekul, Russia, by O.G.P.U. troops, Capt. Sidney George Reilly, M.C., late R.A.F., beloved husband of Pepita N. Reilly.

Marriage.

Crosthwaite—Morris.—On Dec. 7, at Eshowe, Natal, Alan Rowley Crosthwaite, D.F.C., younger son of Rerbert F. Crosthwaite, of Oatlands Park, Weybridge, to Evelyn Sophia Morris, daughter of the late Westcott Mallet Morris, of Kokstad, East Griqualand, and granddaughter of the late Major James, 14th Hussars.

Forthcoming Marriages.

O'Neill—Laing.—The engagement is announced between Flt. Lt. Christopher Thomas O'Neill, O.B.E., R.A.F. Medical Service, youngest son of the late Mr. John O'Neill, J.P., Sarsfield Court, Riverstown, Glanmire, Co. Cork, and Jane Dorothy Laing, daughter of the late Mr. William Laing, Nairn, and of Mrs. Laing, 30, Murrayfield Avenue, Edinburgh.

Porter—Denison.—A marriage has been arranged, and will shortly take place, between Flt. Lt. Cedric Porter, R.A.F., only son of Mr. and Mrs. Francis Porter, of Helmsley, Yorkshire, and Mrs. C. C. Denison, The Manor House, Bosham.

Birth.

Barnes.—On Nov. 19, 1925, at Peshawar, North-west Frontier Province, India, to Kitty, wife of Flt. Lt. W. E. Barnes, Royal Air Force Medical Service—a son.

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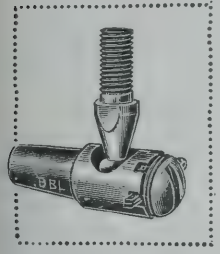
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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 10; Tuesday, 11: Wednesday, 11; Thursday, 10; Friday, 10; Saturday, 11; Sunday, Nil.

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London—Paris—Zurich; London—Ostend Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 39, passengers 109, freight 13 tons.

AIR UNION:

Paris—London: Machines 12, passengers 27, freight 10 tons.

K.L.M.:

Amsterdam—Rotterdam—London: Machines 12, passengers 11, freight 2 tons.

DEUTSCHER AERO LLOYD:

Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES: Nil.

Total number of trips by British Machines: 39, carrying 109 passengers. Foreign machines: 24, carrying 38 passengers.

Comparative Figures:

For week ending Dec. 13:

Machines, 63; Passengers, 147; Crews, 71; Total personnel, 214.

Corresponding week, 1924:

Machines, 31; Passengers, 83; Crews, 37; Total personnel, 120.

Corresponding week, 1923:

Machines, 43; Passengers, 45; Crews, 73; Total personnel, 118.

Corresponding week, 1922:

Machines, 36; Passengers, 123; Crews, 70; Total personnel, 193.

Corresponding week, 1921:

Machines, 11; Passengers, 20; Crews, 19; Total personnel, 39.

Corresponding week, 1920:

Machines, 11; Passengers, 14; Crews, 12; Total personnel, 26.

Croydon Notes.

Croydon, which at one time was so full of incident, now follows the daily round, the common task, with such regularity that it is about as easy to find fresh subjects for these notes each week as it would be to write weekly notes on the happenings at a railway station. In fact, judging from Mr. Oppenheim's books, the railway station is far the fuller of interest.

Imperial Airways Ltd. are to carry out tests of a night service to Paris, and once again the daily papers tell us that this is a preliminary to a regular night service. We have been told this ever since Civil Aviation first began, but somehow or other it never seems to happen.

Has it ever occurred to anyone that the winter is hardly the proper season for such experiments? One realises that night services, when past the experimental stage, will be most useful in winter, when there is not much daylight, but surely to goodness the experiments could have been made in the past when the weather is more settled. Up to now, so far as one can remember, the tests have always been made in January and February, and have always failed on account of bad weather.

The discovery of the Roman Road on the aerodrome, to which reference was made last week, should lead to all sorts of exciting Christmas Ghost rumours. A pilot coming in late in the evening sees what looks like a Roman chariot baulking his landing and has to make another circuit. Probably we shall see some such paragraph as this in the press.

"The pilot of a Rolls-Royce W.8b (or a Napier-D.H.) flying on the Imperial Airway between Paris and London in the record time of 146 minutes, on arrival at the London Air Station, found his landing baulked by what appeared to be a chariot. When he looked again it had disappeared. The pilots of the Rolls-Royce (and/or Napier) air expresses tell me that this phenomenon reappears regularly every Christmas."

Mr. Biddlecombe, like Dracula, seems to be able to command fogs. On Saturday morning the weather at the aerodrome was quite bright and clear. As soon as Mr. Biddlecombe arrived a fog began to gather. In order to avoid holding up all air traffic Mr. Biddlecombe was urged to go away at once. As soon as he left the fog subsided.

One of the questions asked at the aerodrome last week was whether the pilot with his wings on his right breast looks after the right-hand engine only. And whether he who tends the centre engine of the Hamilton wears *his* wings on his tummy.—G. D.

THE ROYAL AERONAUTICAL SOCIETY.

An informal discussion on "Aero-Engine Starting Gear" will be held at 7, Albemarle Street, on Thursday, Dec. 17.

THE FLIGHT TOWARDS THE CAPE.

There is no news of further progress by Mr. Cobham towards the Cape of Good Hope, so apparently he is remaining in Cairo pending further rectification of whatever may have been the causes of his delays.

No statement has been issued to explain his slow progress, and one gathers that avenues are being explored and conversations are taking place in the best political manner with the hope of producing an explanation which will be satisfactory to everybody concerned.

The only definite information received concerning Mr. Cobham's projected journey is that supplies of benzol have been or are being shipped towards the parts of the route which he has not yet reached, so presumably he intends to go on.

One is reminded by an interested party that on the last occasion on which Mr. Cobham flew on a D.H.50 to Africa he got there in a day and used Shell spirit.

Last week he made a test flight in the neighbourhood of Cairo. According to a dispatch sent by him to *The Daily Mail,* he looked down on the Pyramids, a sight hitherto seen only by the vultures.

One was under the impression that a good many hundreds of people had flown over the Pyramids before, and dozens of photographs of them, taken from the air, have been published, some as far back as 1912 or so But anyway the Vultures have got a mention, failing Mr. Cobham's old friend the eagle.

THE NEXT SCHNEIDER TROPHY CONTEST.

It is reported in the press that the Air Ministry have decided to order only three racers for next year's Schneider Trophy Contest. One hopes sincerely that this report is not true. We have seen in the last two contests that building three machines results in having only one machine in the race. If we are going to have a full team in the race we should build a minimum of six, and more, if possible.

The designs of a machine with a Rolls-Royce Condor and a speed of more than 270 m.p.h. have been produced in this country by an independent designer.

Incidentally it is well to remember that the speed of the old Martinsyde "Semiquaver," with a 300 h.p. Hispano-Suiza, was very close to being the same as that of the Gloster III with a 700 h.p. Napier, but with floats,—so we must look for new ideas somewhere.

THE MARCHESE DI PINEDO IN LONDON.

On Dec. 12 Colonel the Marchese di Pinedo and Signor Campanelli, his mechanic, who recently flew from Rome to Melbourne-Tokyo and back to Rome, a distance of 34,000 miles, on a single Savoia flying boat, one of the finest aeronautical achievements, arrived in London. He was received at Victoria Station by the First Secretary of the Italian Embassy, by General Guidoni, the Italian Air Attaché in London, and by an officer sent by the Air Ministry to welcome him.

On Dec. 14 they were entertained at luncheon at the Italian Embassy. Among those present were the Right Hon. Sir Samual Hoare, Secretary of State for Air, Sir Phillip Sassoon, M.P., Air Vice-Marshal Sir Geoffrey Salmond, and Sq. Ldr. E. R. Boyle.

From the cheaper daily press he received considerably less than a tenth of the notice that is usually accorded to many insignificant performers of the cinema screen. But then, of course, he had not the services of a press-agent, and publicity depends not on performance but on pushfulness.

THE JUNKERS AERO-LLOYD.

It has been announced that the two German aerial transport companies, the Deutscher Aero Lloyd and Junkers (Europa Union) have amalgamated, and the new company will begin operations on Jan. 1, 1926. This fusion was agreed to at a meeting held at the Ministry of Communications in Berlin on Dec. 4, at which both companies and all the Federal German States were represented.

The purpose of the fusion is two-fold. The reason advanced by the Press states that the fusion will reduce costs and enable German air transport to combat foreign competition. While this is true it is an open secret that the Junkers Co. have failed financially owing to extravagant management and unnecessary competition with the Deutscher Aero Lloyd and the German Government, in order to prevent further waste of money, has engineered the fusion in order to save the prestige of German aviation at home and in all the other States wherein Junkers has gained a footing.

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THE ROYAL AERO CLUB.

The Royal Aero Club will be closed on Christmas Day, Boxing Day and Sunday, Dec. 27, and for those members in residence only breakfasts will be served on those days.

FOG LAMPS AND HEADLIGHTS.

So many aerodromes are in foggy areas, and so many of those which are not actually in fog areas are subject to ground mists of their own, that motorists in the R.A.F. may be glad to know of a lamp which though it does not actually abolish fog does at any rate make driving in fog very much easier than the ordinary type of head-lamp. These lamps are made by Philips Lamps Ltd., of 60, Wilson Street, Finsbury Square, E.C.2.

In a general way they are just gas-filled bulbs of very good design and quality. But instead of being made of ordinary white glass the bulbs themselves are made of a special glass which is of a kind of cobalt blue colour. Using these lamps under ordinary circumstances one cannot perceive that the light delivered differs in any way from the light of an ordinary white bulb. That is to say, when put into a head-lamp to which one is accustomed the Philips bulb throws a beam which is just as long and just as clear as does the ordinary bulb of the same candle-power, and one does not notice that the light thrown is different in colour.

In an ordinary autumn mist one finds that the head-lamp, instead of throwing a brilliant white beam which has a somewhat dazzling effect on the driver behind it, simply projects a light through the mist and illuminates the surroundings.

Personally one always arranges one's headlights so that the right-hand light throws straight ahead level with the road surface and is focussed so that it throws the smallest possible beam for the longest possible distance, as nearly like a search-light as possible. The left lamp is then adjusted outwards and downwards, so that when the car is standing about three feet from the left gutter and parallel with it the centre of the light from the lamp, which is focussed to give a wide beam and not a concentrated beam, throws onto the gutter about twenty yards ahead.

This arrangement has a double advantage. When one is driving on a clear night and meets another car with brilliant headlights the wide bright beam of the left-hand lamp illuminates the side of the road and by watching it, and so looking away from the other man's lamps, one can not only spot cyclists or pedestrians on the side of the road but can maintain one's speed without slowing for the other man to pass. If at the same time one switches out the right-hand headlight the other man is not dazzled by it, and so he also maintains his speed and goes past all the quicker, and the delay to either car is that much less.

The other night one had an opportunity of testing these lamps in a real London Fog. With the blue Philips Lamp one found that the downwards and outwards beam from the left-hand headlight not only gave a much clearer illumination of the side of the road but seemed to radiate in every direction through the fog much as daylight does. One has not gone into the theory of the light but one imagines that the blue glass of the bulb cuts out from the lamp those particular white rays which are reflected by the particles of moisture and dust in the fog back into the driver's eyes. Thus the lamps do, in effect, throw a light which is of very much the same quality as daylight.

Even daylight will not actually penetrate thick fog but it does at ony rate impart a certain luminosity to it. And that is apparently the effect of the blue Philips bulbs. At any rate one can recommend them from one's own experience as being excellent lights under ordinary circumstances and of very great assistance when driving in mist or fog.—C. G. G.

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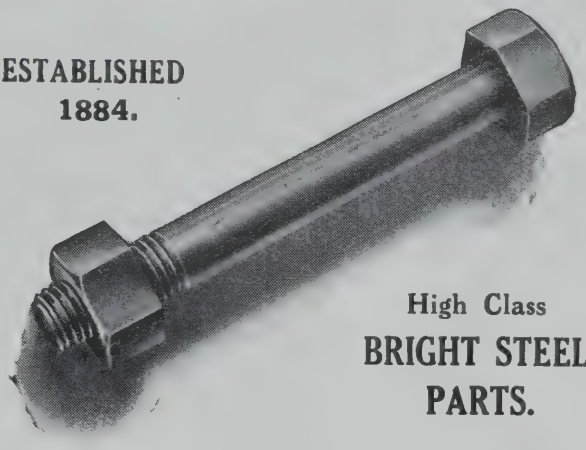
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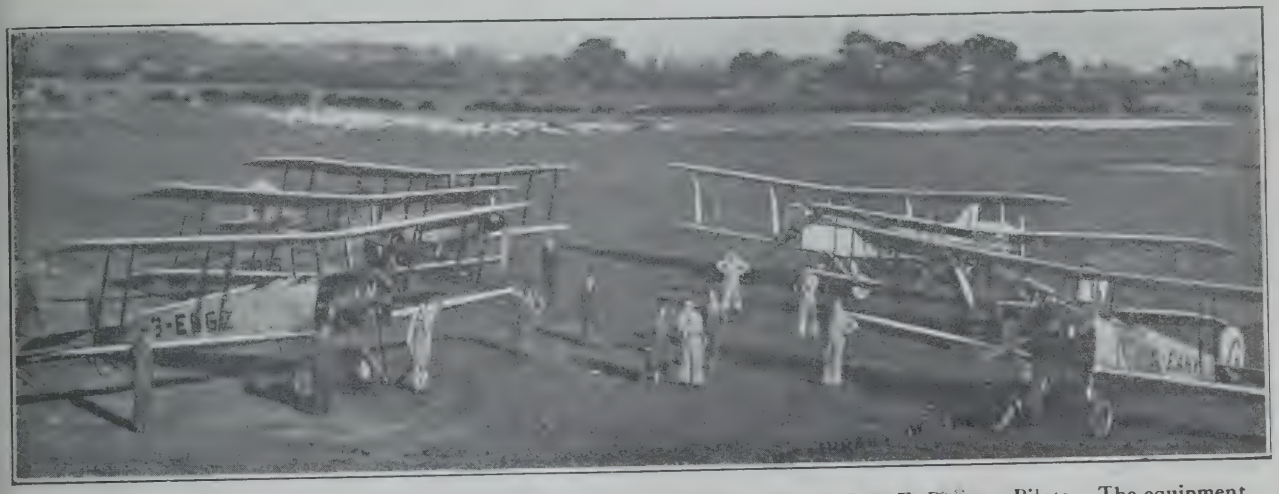
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ON THE DEFENCE OF AUSTRALIA—II.

In the first instalment of this article one demonstrated that Australia cannot build, buy or maintain a navy which would afford any protection against Japanese aggression either in the form of bombardment by gun or aeroplane from the sea or against the landing of troops and one argued further that no Australian Army could be moved quickly enough to prevent Japanese troops from landing. Arguing thence one set forth reasons for assuming that Australia could, without overburdening her finances, equip and train and maintain an air force which would ensure her safety against attack from the sea. Let us now consider how such an air force could protect Australia.

Boiled down to essentials, the defence of Australia against attack from the sea is a problem precisely similar to that of defending any other country against attack from the sea subject only to minor considerations of climate and geography. That is to say, a country with an enormous length of coast-line, like Australia, is more difficult to defend than is a country with a small coast-line and a thickly-inhabited area far inland. Such a country is easy to protect against attack from the sea because it can concentrate a large air force within easy flying distance of a narrow front, and so can launch an attack by quantities of bombing and torpedo craft against any attacking fleet, while on the other hand the fleet itself must concentrate within a comparatively small area of sea in order to attack the small coast line.

Practical Examples.

Take for example the War 1914-18. Practically the only way we could have reached any part of Germany from the sea was through the short strip of coast between Denmark and Holland or across Belgium. The fact that we never did so to any extent worth noticing was merely one of the many mistakes made by the chiefs of His Majesty's Navy.

The Royal Naval Air Service was always anxious to attack that particular coast-line and if they had done so a number of German aircraft would have had to be concentrated in that area for purposes of defence. As it was even the small force of naval machines based on Dunkirk kept a vast number of German aircraft fixed in Belgium, not to mention many thousands of anti-aircraft gunners and their auxiliary personnel. But beyond diverting troops and war material to those particular areas we could not have done very much actual harm to Germany simply because we should have had to attack on such a narrow front.

The problem of attacking from the sea a country like Australia is very much easier. All the towns which are worth attacking are right on the coast and the great majority of the population exists in those coast cities and coast towns and so can be made to suffer by attacks from the sea.

Moreover all the supply depots for the defence forces are on the sea coast itself. There is no industrial area far inland where war material can be concentrated or produced in such a situation that it is difficult to reach from the sea and easy to defend. Which means that the attacking force can actually get within gun range of the cities and supply depots without much risk to itself from any defences which exist in Australia to-day.

Shelling and Bombing.

In actual fact bombing by aircraft is far more destructive to a city than is shelling with heavy guns. But on the other hand shelling is more demoralising, except to trained troops, who for some strange reason are more affected by bombing then by shelling.

One remembers just before Christmas 1917 driving through Hazebrouck into which the Germans were dropping 12-inch shells at perfectly regular intervals of twenty minutes



AIR TRAVEL IN AUSTRALIA.—A D.H.9 and a Bristol Tourer which have done excellent work for several years for the Queensland and Northern Territory Aerial Service Ltd.

all day. They were shelling by the map through a fog, but their shooting was extraordinarily good and though they never got the railway junction at which they were aiming they never missed the town itself. Yet the damage was amazingly small.

If the big shells dropped into a house they demolished the house but did little damage round it. Very often they went clean through the house and only burst after burying themselves in the ground outside it. The total amount of damage done by the whole day's shelling was nothing like as impressive as was that done by the one salvo of bombs which fell in Warrington Crescent, near Maida Vale, out of one of the German Giant machines, the bomber in which apparently pulled the plug and released the whole lot at once to get out of the way of anti-aircraft guns. That salvo completely abolished two or three houses and made about thirty uninhabitable.

In Hazebrouck the troops and what was left of the civilian population were practically unmoved morally by the shelling. But when the Germans turned their big Berthas onto Paris and shelled the city at a range of fifty miles or thereabouts the nerves of the civilian population were far more shaken by the shelling than ever they had been by aeroplane raids.

The effect of a shell arriving out of nowhere in particular and falling any-where seems to be much more alarming to a civilian population than is the dropping of a bomb from an aeroplane whose position can be located by its sound with some approach to accuracy. Moreover the moral effect of an aeroplane raid is somewhat lessened by the fact that when a raid is over it is over, at any rate for the time being, whereas shelling can apparently go on for ever.

Naturally tricks can be played with bombing aeroplanes, as will be realised by those who took the trouble to read Sir Edward Ellington's dispatch from Waziristan. When the population becomes accustomed to being bombed by night it can be shaken by intensive bombing in the daytime. And when it becomes accustomed to one big raid in a night it can be shaken by a continual stream of small raids.

On the other hand even the most seasoned troops hate being bombed. They become used to shelling and they know that if a shell does not hit their particular dug-out they need not worry about it. Also they know that shells must come from one particular direction and they place their dug-outs accordingly. But bombing seems to worry them a great deal more.

Thus one may see that a fleet accompanied by aircraft carriers so that it can shell and bomb at the same time is bound to be able to shake the moral of a civilian population, even of such fine adventurous fighting stock as the Australians.

Effect on Shipping.

Apart altogether from the moral effect on the civil population which a Japanese fleet could produce by bombing and shelling the coast towns and by destroying such small factories and workshops as exist in Australia, there is also the fact that such a fleet could destroy all shipping in the Australian harbours and could prevent ships on the high seas from entering the harbours. Consequently within very few weeks Australia would be cut off from all outside supplies.

Australia would thus be deprived of all manufactured goods. All her petrol and coal supplies would be held up so that she would have no means of locomotion other than by native coal on her railways. The result would be that within quite a short time Australia would have to be absolutely self-supporting. And though the farming population up-country would doubtless suffer very little the coast towns would be starving a few months after the first attack was delivered, which might be immediately after the outbreak of war or might not be for a year or so afterwards, according to the different ideas of the Japanese strategists.

One imagines that the attack would be made almost immediately on the outbreak of war, because if the attack were not made then Australia would have time in which to call on the rest of the British Empire, including the Mother Country, for supplies of war material such as would enable her to put up some sort of a defence and also to keep her own fighting forces supplied for some considerable time ahead.

But if the Japanese chose to establish themselves firmly on the Australian Continent, they could do so practically without serious opposition unless the Australian Government had already organised a thorough system of defence. And, in view of the fact that the war with Japan may begin any time from two years hence onwards, the Australian Government will be well advised to set about organising its defences at once.

Japan's Reasons.

There are many reasons why the Japanese should want to establish a considerable force on Australian soil.

In the event of Japan going to war with America—even before England, by way of the Locarno Treaty, is involved in a war with Russia in Europe—the Japanese will want to prevent the American Navy from using Australian ports as bases for the sea war in the Pacific. The recent visit of the American Pacific Fleet to Australia, and the exceedingly



AN INLAND AREA.—A photograph of the Friedrichstrasse Station and the centre of Berlin, taken from an aeroplane of the Deutscher Aero Lloyd.

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friendly relations which have been established between the American naval people and the population of the Australian ports, points very clearly to the fact that America does expect to have Australia's help in her war with Japan.

There is also the fact that the Japanese would certainly endeavour to establish a naval and air force base in Northern Australia in order to counter any attempts made by combined English and American forces to defend or recapture the Dutch Oil Islands, which would be Japan's next objective after the occupation of the Philippine Islands.

And there is the further point that, by smashing the Australian ports and cutting off shipping to Australia, Japan would be able to prevent Australian soldiers and aviators from joining British Imperial Forces in any other part of the World.

Defence Organisation.

That being so, it is obvious that the first, and by far the most important, task of the Australian Government is to prevent any Japanese fleet from coming within 100 miles of the Australian coast. This means that Australia's air fleet must be organised with the central idea that it will have to operate 100 miles out at sea and that all waters inside of a belt of 100 miles wide round the Australian coast must be reasonably well patrolled to prevent Japanese submarines from coming near enough to the coast to interfere with coast-wise shipping.

This divides the coast defence organisation quite clearly into two branches. One branch must be so equipped that it can prevent big-gun ships and aircraft carriers from coming inside the 100-mile belt, and the other branch must be so equipped that it can deal with submarines which come into that belt and endeavour to operate close in-shore.

For purposes of argument one of these branches may be called the Fleet Attack Branch and the other may be called the Coast Patrol Branch.

In the Fleet Attack Branch there must be included long-range high-speed scouts capable of operating far outside the 100-mile belt so as to observe the coming of a hostile fleet and give warning of the direction of its approach, so that the actual fleet-attack machines may move along the coast to whatever previously-arranged base may be best as a jumping-off place for their operations.

Naturally the bases arranged for the fleet-attack machines will also serve as bases for the coast-patrol machines.

The essential feature of the Fleet Attack Branch must be speed. The corresponding feature in the Coast Patrol Branch must be range, or rather what the French call *autonomie*.

Autonomy.

Incidentally that word "autonomy" (with Anglicised spelling) might very well be adopted into the English aeronautical language. The Navy habitually talks about a ship's "radius of action" when it really means the distance which a ship can cover on the fuel supply which she is able to carry. As a matter of fact it has nothing whatever to do with a radius, which is the line from the centre of a circle to the circumference, so that radius of action cannot even mean an out-and-home journey in a straight line and still less can it mean a voyage out and home on an irregular course.

The word *autonomie*, as used in the French Services, means the distance which a machine will cover in the air with its full load of fuel. And that distance of course depends on the wind, so that the autonomy of a machine is not necessarily the mileage which it is capable of covering over the ground or over the sea.

Talking of the duration of a machine in the air, or tankage for so many hours' flying, does not express the same idea, because two machines might each have tankage for six hours' flying and on that tankage one machine, say a slow flying boat, might have an autonomy of 450 miles, whereas a genuine sea scout, derived from a Schneider Trophy racer, might have an autonomy of 1,200 miles.

Looking at the matter conversely there are the cases of the Fairey Fawn and the Fairey Fox. They are both capable of carrying the same load of bombs, but the Fawn, which is a slow machine, covers about the same distance with five hours' fuel that the Fox covers with about 2½ hours' fuel. Which means that in the event of having to fly against a strong wind the actual distance over the ground covered by the Fawn would be considerably less when all her petrol was exhausted than that which would be covered by the Fox. For, supposing the wind were blowing at 30 miles an hour the Fawn would only be doing about 50 miles an hour over the ground and so would only cover 250 miles in five hours, whereas the Fox, with her 160 miles per hour, would still be doing 130 m.p.h. over the ground and so would cover 325 miles at the end of her 2½ hours. Which will also show why high speed is essential in fleet-attack machines.

A Speed Axiom.

For the Fleet Attack Branch one would lay down as an axiom the rule that no machine may have a top speed of less than 130 m.p.h. If those machines are going to attack, regardless of weather, a fleet 100 miles out to sea they must not spend more than one hour getting out and another hour getting back, so that they may have at least another couple of hours in which to carry on their actual operations against the fleet.

Petrol for four hours' flying is as much as any machine ought to be asked to carry if it is going to carry a lot of bombs, or torpedoes which are worth dropping. And if those machines are going to do their job against a 30-mile-an-hour wind they ought to have a travelling speed (which is what one might call the speed between top speed and cruising speed) of 130 m.p.h. in order to reach their 100-mile objective in the hour.

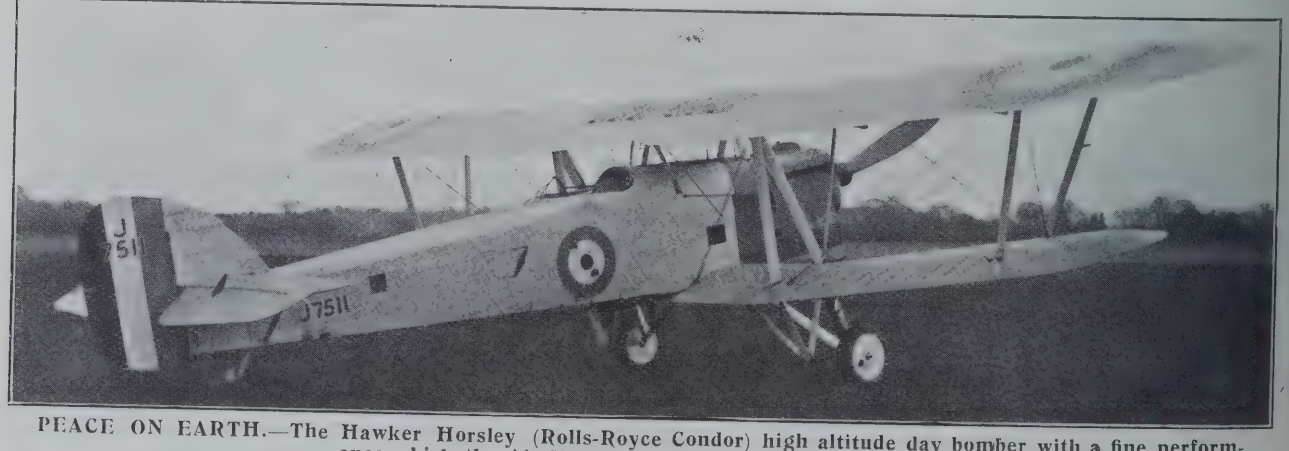
This is a point which our Air Ministry experts have missed badly in making up the specification to which our unfortunate trade designers are tied in designing bombing machines. In order to comply with Air Ministry specifications many of our big bombers only have a travelling speed of about 80 miles an hour so that if they are forced to fly against a 30-mile-an-hour wind they can only make about 50 miles an hour over the ground and so would spend the whole night reaching an objective only 250 miles away, which they ought to be able to reach in 2½ hours.

There is no use whatever in building machines to carry fuel for 12 hours if in that 12 hours they only cover a distance which ought to be covered in six hours. The present arrangement merely means that the machines are in the air for six entirely unnecessary hours during which they are in danger of being shot down by enemy aircraft and anti-aircraft guns, and are in danger of forced landings owing to engine failure or the development of other difficulties.

Eggs and Baskets.

Moreover our Air Ministry experts have committed the egregious error of putting too many eggs into one basket. They put half-a-dozen expensively trained men, an enormous amount of petrol, and a fairish quantity of bombs into one colossally expensive machine. The result is that one well-placed enemy bullet or shell can do the maximum amount of damage. They have not yet grasped the elementary sense of the multiple-unit system, which is the gospel of that most up-to-date form of engineering, the electric railway.

A fleet-attack formation should properly consist of bombing machines with an escort of fighters. But nobody has yet proved beyond argument whether in fact bombers can do the whole of the work of destruction without torpedo-droppers. There seems to be something in the theory that it is easier to torpedo a ship than it is to destroy it with a bomb, be-



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cause when once it is launched the torpedo takes care of itself so far as altitude (or rather depth) is concerned, so that the pilot and/or torpedo-dropper only has to look after the line of discharge. In a bombing machine the bomber has to watch not only his own line but he has to calculate his altitude and has to make more accurate allowances for the direction of the ship.

On the other hand a torpedo may hole a ship, especially one protected by external compartments, or blisters as they are called, without sinking it or seriously affecting its speed. If a really big bomb, say a 2,000 pounder or a 4,000 pounder, gets close enough to the hull of a ship it will probably heave the ship out of the water and break her back, or at any rate dislocate her internal mechanism so that she will be out of action.

For the benefit of those who have not taken much interest in the bombing of ships one may as well point out that the object in bombing is not to hit the ship so much as to break her back by an upheaval of the ocean. A bomb dropped on the deck of a heavily-armoured ship may destroy a lot of top-hamper and may kill a fair number of people but it is not as likely to put the ship definitely out of action as is the other method.

The Need for Evidence.

Unfortunately, although the British Navy has sacrificed a number of obsolete warships to the Navy's own gunnery experts by allowing them to sink the ships by means of shell fire and torpedoes, Their Lordships of the Admiralty have steadfastly refused to allow the Air Force to have even an obsolete armoured ship to be sunk by bombs.

The only convincing experiments of this nature which have ever been made were done off the coast of America, when some German warships were sunk by heavy bombs dropped by the U.S. Army Air Service under the personal direction of General William Mitchell, after the U.S. Navy Air Service, hampered by the deliberate interference and limitations imposed on it by senior naval officers, had failed to sink those same ships.

Having so many obsolete warships of our own, besides the surrendered vessels of the German Navy, we could afford better than any other nation to perform convincing experiments along these lines. But our Admiralty steadfastly refuses to permit these experiments. And the only conclusion to be drawn from such a refusal is that the senior officers in the Navy are afraid that the Air Force will prove its ability to defend any part of the British Empire against naval attack and that in consequence the British Navy as such will have to go out of business.

Undoubtedly if and when the British Navy acquires complete control of its own Air Arm, elaborate experiments with complete warships and full-sized bombs will be carried out by the Navy itself. And then the Navy will certainly produce its own big bombing machines, for such experiments carried out honestly and efficiently cannot fail to prove that surface ships are in the end as defenceless as are submarines against properly organised and equipped attacks from the air.

At this point one may remark that if the bombing experts at the Air Ministry want to hold their jobs a few years hence, their only hope is to start here and now to produce aeroplanes of a type which will carry bombs of at least 4,000 lbs. apiece for the sinking of big ships and to have these machines designed on the one-man-one-bomb principle. The types of heavy bombers at present produced to Air Ministry specifications would be utterly useless in action against a well-equipped fleet 100 miles out at sea, or for the matter of that at any other distance.

Escort Aircraft.

The Fleet Attack Branch must have fighting machines as an escort for its torpedo and bombing machines so as to protect them against deck-flying fighters which may be sent up by the fleet which is to be attacked. These machines should actually be a good deal faster than the bombers and torpedo droppers but they must have the same autonomy, and they must be able to fly sufficiently slowly to travel with their convoy.

In addition the Fleet Attack Branch must have a certain number of machines suitable to carry gas-bombs and to make smoke-screens, so that the enemy fleet may be gassed and blinded as far as possible before the bomb and torpedo attack is made.

The ordinary method of putting up a smoke-screen in our Services is to drop smoke-making material into the water in a line to windward of the fleet and just let it drift. A far better method is that developed in America, as illustrated in The Aeroplane a little over a year ago, in which the smoke is emitted from a smoke-making machine very much in the way in which Major Jack Savage's sky-writers deliver their trail of smoke.

But whereas the sky-writers use a smoke as nearly as possible of the same specific gravity as the air, so that it will stay put as long as possible, the American smoke screen is so composed that a part of it is heavier than air, with the result that when the trail of smoke is emitted from the machine it sinks to the surface of the earth or water and leaves a perfect curtain of smoke hanging from the line along which it was emitted.

The advantage of this is that a high-speed smoke-making machine can fly along to windward of a fleet only a little above the level of the gun-turrets and so lay a smoke screen which while completely blinding everybody on the ship still leaves the mastheads, and possibly the funnels, sticking out of the smoke so that torpedo-droppers can see precisely the line of the ship and judge from it where to drop their torpedoes.

Coast Patrol.

For the coast patrol machines the probability is that big flying-boats are the most suitable. They should be fast enough to be able to make useful progress against any wind which they are likely to meet. That is to say, their speed should be about 100 to 110 miles an hour, so that at all times they can depend upon making 70 or 80 miles an hour over the water. They are hardly likely to be attacked by enemy aircraft, therefore they need not carry a large number of machine-guns, which also means decreasing their load of machine-gun ammunition.

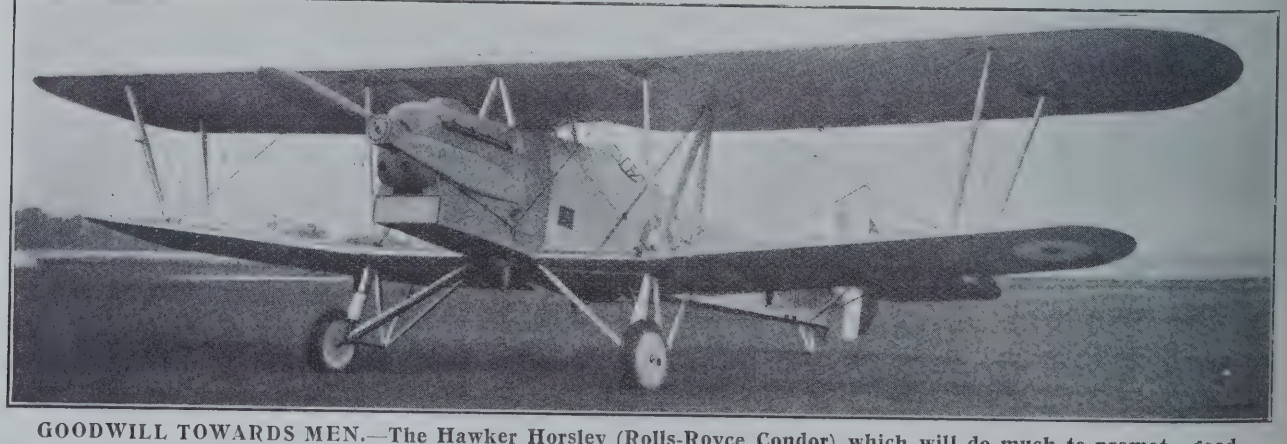
They might possibly carry one decent-sized gun forward in case they happen to spot a submarine on the surface, or in case a submarine should emerge when they are themselves on the surface with perhaps a disabled engine. In that case they would fire a shell big enough to make a hole in the submarine and so prevent it from submerging.

Apart from that the only armament they really need is a goodly supply of depth charges. Their task would be to patrol waters just outside the three-mile limit, for presumably all coast-wise shipping would keep as close to the coast as possible.

Kite Balloons.

Presumably flying-boats would not be required actually to fly with convoys of merchant shipping. Such convoy work can be done perfectly well with kite-balloons towed above tramp steamers. This fact is proved by the record of the escort work done in the Mediterranean during the War 1914-18.

No convoy which sported a kite balloon was ever attacked. And an interesting fact which one only came across the other day, made known by an officer who worked with kite balloons in the Mediterranean, is that on the two occasions



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when his kite balloon ship was unable to operate, their convoy was attacked and lost a ship each time.

On one occasion something went wrong with the kite-balloon and it was hauled down to the deck for repairs. On another occasion the kite-balloon ship was put into port at Malta for some reason or another while the convoy went round to the other side of the island. And on each occasion a convoy ship was torpedoed.

Apart from those two occasions they were never even attacked. The reason was that the submarines used to see the kite balloon long before they could be seen themselves and would not risk coming within gun-range of the convoy, because they knew that if they did so they would certainly be spotted by the observers in the balloon.

Australia's Needs.

To sum up, what Australia actually needs are aircraft of the following classes :—(a) High-speed long-range single-seat scouts derived from the Schneider Trophy racers, with an autonomy of about 400 miles; (b) Fairly high speed single-seat fighters; (c) Gas and smoke-screen droppers; (d) Large high-speed bomb-droppers and (e) High-speed torpedo droppers—all with an autonomy of approximately 400 miles.

All these are for the Fleet Attack Branch. They may be float seaplanes or they may be machines designed to start from land, but also so designed that if they are forced to descend on the water they will at any rate float and give their crews a chance of being picked up.

For the Coast Patrol Branch practically all that are needed are the big flying boats and kite balloons.

If those who are responsible for the Royal Australian Air Force will argue these points carefully among themselves they may come to slightly different conclusions in some ways but one believes that they will agree with the general lines of one's own argument. And having come to a conclusion their task now seems to be to convince not only the Government of Australia but the people of Australia that the money must be found to build, man and organise an air defence fleet on those lines.

Getting Those Needs.

Naturally a beginning should be made by ordering machines of these types from British aircraft constructors, simply because we have in this country designers who are capable of producing machines of such types if left free from the interference of the Air Ministry's experts.

Australia herself has men of fully adequate brain power and experience to supervise the construction of such machines and to advise on what is required for Australian conditions. The flights which have been made round Australia by seaplane and land aeroplane prove that on such matters the Royal Australian Air Force needs no advice from our Air Ministry experts.

When such machines have been produced and have been tested successfully in Australia, then Australia herself can start to organise factories where a further supply of such machines can be built in collaboration with the constructors who built the original machines in this country.

One is convinced that if a policy on these general lines be followed, Australia is capable financially of producing a defensive air fleet which is fully competent to keep any possible Japanese sea-going fleet from being any real danger to the lives or even the personal comfort of Australian citizens. And so far as the personnel of such a fleet is concerned Australia has shown in many hard-fought battles that she is perfectly capable of looking after herself.—C. G. G.

THE NEXT SCHNEIDER TROPHY CONTEST.

Owing to this being the peace and goodwill season and owing to that Locarno feeling which is now prevalent one will refrain from venting any feelings this week on the Air Ministry over the Schneider Trophy Contest. But one would point out that it is now some seven weeks since the Trophy was lost and the Air Ministry have not yet made up their minds and published their decision as to their plans for next contest.

Even the most pessimistic among us imagined that they would at least have come to a decision by Christmas. But there you are, and, as one said, it is the peace and goodwill season.—G. D.

COLONEL MITCHELL'S SENTENCE.

On Dec. 17, Col. William Mitchell, who has been on trial by Court Martial for criticism of the administration of the U.S. Army and Navy Air Services, was found guilty of insubordination and conduct prejudicial to military discipline. The sentence is that he is suspended from duty for a period of five years.

In passing the sentence Major-General Howse, President of the Court, said that he and his colleagues had taken into consideration Col. Mitchell's war service and had therefore passed a lenient sentence.

The next move is with Colonel Mitchell, who is now quite free to take any political action which pleases him.



THE GREAT FLIGHT.—The Savoia seaplane of the Marchese di Pinedo being filled up with Shell Spirit in Tokyo.

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THE SECOND ROYAL AERO CLUB DINNER—DEBATE.

The Second Monthly House Dinner of the Royal Aero Club on December 16 was quite a success, although perhaps not so exciting as the first one, at which, because of the intensity of feeling over our Schneider Trophy disaster and the attitude of some people in the Trade on the introduction of American products into this country generally, the debate was sliding on thin ice the whole time.

Air Vice-Marshal Sir Sefton Brancker, who opened the debate, was duly provocative verbally but did not produce any facts which provoked controversy. He started by saying that he had left his official astral body at Gwydyr House and was there in a purely personal capacity. British Aviation depended on the Royal Aero Club and the Royal Aeronautical Society, in which case they could get at him as a member of committees of both bodies. It also depended on the Air League, but there he was immune from attack.

As he was not on this occasion Director of Civil Aviation he could say that aviation was dull but disreputable. It was a shame to turn a splendid thing like military aviation into mere commerce. He recalled the remark after the Armistice of an old Army offcer, commanding the area which included Kenley, who, on seeing a fighting machine rigged up with a cabin by the Communication Squadron for the transport of exalted personages, remarked "I call this positively disgusting."

At the end of the War there were three policies which the Government of the period could have pursued in relation to Civil Aviation, (1) To do nothing, (2) To make it a Government undertaking, and (3) To subsidise it. Naturally the Government did nothing, so an effort was made by civilians to start it.

Various air lines began work and the effort ended by one of them committing suicide on the steps of the Air Ministry and the others threatening to do so. Meantime the French Government which was rather keen on aviation did all they could to push civil flying.

Our Government then decided to subsidise Civil Aviation in the way which was most extravagant. Violent competition followed. Then the Hambling Committee produced Imperial Airways. The latest modifications of the subsidy would give that firm eight years' clear policy and a monopoly of the Egypt to India route.

An encouraging sign was that the public were beginning to use aviation. One ex-R.A.F. officer had told him that he had crossed to the Continent fifty-two times in the last year. A woman passenger said that she went to Paris and back once a fortnight regularly by air. An old lady who arrived recently from Wiesbaden on being met by her sorrowing relatives remarked that "the journey was very dull, my dears."

At first the English air lines did most of the work. Then came a set back in 1924-25. This country ought to have a guilty conscience. Our mail traffic was poor, but our goods were going up.

Thereafter Sir Sefton read a series of figures which one was unable to note. One gathered that we had flown four and a-half million miles with four fatal accidents and that Sir Sefton thought that this was about as good as the railway average. [One would point out that the London tube railways must do on an average about fifteen million passenger miles *per day* and to the best of one's recollection they have never yet killed a passenger,—deliberate suicides who jump from the platforms under the trains cannot be counted as accidents, nor indeed can people who fall off platforms by accident or get jambed between the platform and the carriage when trying to jump into a moving train. They merely correspond to people who walk into revolving airscrews.]

Sir Sefton said that in America a State air mail service was run which cost £600,000 a year and covered 1,800,000 miles. This was more expensive than any European service but it carried sixty million letters. Having established this service the U.S. Government were now calling for mail-carrying tenders, and prominent American business men thought that mail lines could be made to pay on the consequent postal contracts.

Turning to the subject of racing Sir Sefton said that the big people with money in this country did not support the game as they did in Germany. They suffered from a lack of imagination.

He said that British air survey was the best in the World, if one included Canada.

On the subject of private flying he referred to an article by a prominent politician which appeared in a Sunday paper recently as being a monument of inaccuracy.

Lieut.-Colonel Moore-Brabazon, M.P. (Parliamentary Secretary to the Road Board), said that it was remarkable that Sir Sefton could be so interesting, speaking as he did on aviation three days a week. He said that the Man in the Street did not realise the danger of other methods of transport and he doubted whether railways or roads were as safe as air transport. [As one has already remarked railway transport is incalculably safer than air transport. And if road transport is no safer, that is entirely the fault of the criminal way in which roads are built under the execrable mismanagement of Col. Brabazon's department. But before that department made a mess of our roads motoring was very considerably safer than flying.]

Continuing, Col. Brabazon said that even if flying were safe and regular the delays at terminals and the time spent in reaching them would prevent passengers from travelling by air. He asked what advantage the Auto-Giro would have in allowing landings in the centre of London.

As a sign of the times he mentioned the fact that in connection with a new dock scheme the Admiralty had insisted on an air survey being made, which, he said, showed quite advanced thought for the Admiralty. As to the re-organisation of air transport, he said that it might possibly be put under the Ministry of Transport but he thought that his department had quite enough to do without being responsible for Sir Sefton Brancker.

Mr. T. O. M. Sopwith told a story, which is worth quoting as an elaborated version of the phrase "Save me from my friends." A criminal in the States about to be hanged (presumably by Lynch Law) was asked whether he had any remarks he would like to make. As he replied in the negative a sympathetic bystander said that he would like to say a few words for him. When the criminal was asked whether he had any objection he replied "No, but for Gawd's sake hang me first."

Continuing Mr. Sopwith said that Sir Sefton was the man for his job because he believed in the job. Instead of taking leave which was due to him Sir Sefton was shortly going to the Irish Free State and then to America, including Canada.

As to private flying he said that we ought to have more private owners in England. He expressed his pleasure at seeing Mr. Holt Thomas present even though he was acting in a way contrary to the "Drink-More-Milk" posters in the production of which he had confessed to having a part. [Mr. Holt Thomas is now interested in breeding Friesian cattle, and one wonders that the Society of British Cattle Growers, or whatever they call themselves, do not have questions asked in Parliament about this importation of foreign stock to the detriment of British breeders. Apparently Mr. Holt Thomas occupies in the cow trade the rôle of C. R. Fairey in the aeroplane trade.]

In conclusion Mr. Sopwith said that air transport was so safe that there was apparently no need for British constructors to build civil aeroplanes.

Major C. C. Turner of *The Telegraph* said that Sir Sefton really ought to be called "Doctor Brancker," in attendance on "Miss Aviation," and remarked that he had a perfect bedside manner. All the same the City did not believe in aviation. Railway statistics showed up the danger and unreliability of aviation. The new subsidy on a basis of horse-power-miles would decrease the journeys which would be done.

Mr. Oswald Short said that he had expected Sir Sefton Brancker to talk about the difficulties of Civil Aviation, whereas he talked about its success. The difficulties were what appealed to designers. He asked whether aeroplanes were ever going to pay. His confidence in their paying ultimately was immensely increased because he knew that our atmosphere held forces which were not tapped. When we knew how to use those forces flying would be revolutionised.

Our constructors needed more courage. One foreign country at least was building a machine entirely unlike our ideas. It was certainly unpleasant to hear criticism but it spurred us to fresh endeavours. [One hopes that British aircraft constructors who resent criticism in The Aeroplane will lay to heart this remark by one of their own number.]

As an example of how things are done elsewhere Mr. Short said that for several years before 1922 he had pressed the Air Ministry to take up a certain new design. In 1922 he went to the United States and in Washington he called on the Chief of one of the Government Bureaus. He asked his hearers to note that he interviewed this official at 9 a.m. A few minutes afterwards a number of the officials of that department were collected and a searching discussion was held at which the officials agreed that they would like to have such a machine.

He was told that they could not buy one from him because they were forbidden by American Law to support development work in foreign countries, but that they could order a machine if he could arrange for it to be built in the States. That having been agreed the Chief of the Bureau had got financial sanction from the Head of the department in ten or fifteen minutes. [This is an admirable example of American methods as compared with the time it takes to get

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anything new through the Technical Department, the Supply Department, the Financial Department and the Contracts Department at the Air Ministry. Such negotiations would take at the very least six months as against two hours in Washington.] Mr. Short added that unfortunately he was unable to get anybody in the American Industry to take up the work of construction. [Whereas here we take up American ideas and then force the Government to buy the resultant product.]

Continuing, Mr. Short remarked that if our machines were obsolete there was no use in having a lot of men for them. The machine itself was of paramount importance. Germany had captured the dye trade of the World by producing the right article. Trade would follow if we produced the right machines. Research work must not be curtailed. And by research work he did not mean the deliberation of days but work by men of experience unfettered by official restraints.

Mr. Holt Thomas said that in 1919 the gentleman who had said that he was not Director of Civil Aviation had expected to have an air line through to Australia in 1920; but now the Director of Civil Aviation looked forward to having his line to Australia ten years hence. If people concerned with aviation did not like Imperial Airways it was their own fault for not forming a National Air Transport Company.

What was wrong with our air lines was that they were forced to start on the London-Paris route in competition with heavily subsidised French lines. To-day we only carried joy-riders and not mails or bank letters. The United States air mail service only saved 30 hours on the trans-Continental journey. [One believes that it saves about 48 hours.] We could save thirty days with an air line to Australia.

The American Mail Service was the most efficient in the World because Col. Henderson based its efficiency on ground organisation. Our first air line had the intention of arranging privately with French farmers for landing grounds for ten or twenty miles along the Paris route. But the Government said that they would make the arrangements. And we had still not got those landing grounds.

Every business firm in France supported the French Air League, which had extensive influence. He wanted our Air League to wake up Britain. [One fears that this will never be done so long as the Air League is under its present eminently respectable but unenterprising control.]

Mr. Handley Page remarked that he had listened with patience to the speeches, unaccustomed as he was to public silence. Referring to the article on "The Strangehold On Civil Aviation" he said that aviation wanted more of Mr. Holt Thomas' milk and less of the policeman. If you had a motor licence [loud laughter, Mr. Handley Page having been unfortunately deprived of his] you could drive whether you were halt, maimed or blind. If you were a taxi-driver you had to be physically fit and had to conduct yourself properly. But to fly for hire or reward you had to have what was aptly called a "B" licence. He wanted normal flying to be unhampered after a pilot had passed the Aero Club's test of ability to fly. [That is just about what the law amounts to at present. Anybody who is physically fit can have an "A" licence but to become an aerial taxi-driver he has to have a "B" licence and conform to regulations. Apart from Col. Moore-Brabazon's abominable roads, the danger of motoring in this country is due to the fact that any fool is allowed to drive without having proved his ability first. We do most distinctly need an "A" licence for motorists.]

Further Mr. Handley Page said that the light aeroplane clubs were making a good beginning with private flying. And if we could fly in fogs and at night we could fly the Imperial Mails.

Major Hemming said that he was glad that Sir Sefton Brancker was going to Canada. Hitherto we had been far too insular. We had the finest Empire in the World. Flying would make an Empire Parliament possible by reducing the time which overseas representatives would take to attend it. Canada had adopted the best air policy after the War. Air officials and pilots had been called together to consult on the uses of aircraft. They decided that map-making and fire-fighting and air surveys offered the most immediate scope. As to private flying he said that supervision was the death of enterprise

Mr. Barnard, of Imperial Airways, who as one of the finest pilots in the World is better entitled than anybody else to speak his mind on the subject, as he cannot be accused of cold feet, said that all the speakers had been talking about the safety of flying although they themselves knew that it was dangerous. He put the whole thing in a nutshell by saying "If an engine leaves off it means a crash." We should do better to admit that flying was dangerous and to set about eliminating the dangers. Three engines might help. We ought to spend more money on developing directional wireless control.

Captain W. H. Sayers, of The Aeroplane, said that Mr. J. D. North recently remarked that the greatest drawbacks to British Aviation were secrecy and lack of flying. Civil Aviation did not pay, but only the Air Ministry knew the real figures. Only fragmentary information escaped. The failure of Civil Aviation was due to our failure to sell aerial transport to the public.

Of the expenses of Civil Aviation at least two-thirds came out of public funds and the public were entitled to information as to how this money went. We should save more by doubling the amount of traffic than by any improvement possible in the aeroplane itself. We had failed in publicity and in production of statistics.

In the United States sales of aerial photographs and payments for aerial surveys amounted to 100 per cent. above the receipts of Imperial Airways. We had been misled by that obsession of all business men, the idea that a new method of transport could succeed by stealing transport which was already established by other methods. The way to make flying pay was to go where no communications already existed.



SAFETY FIRST.—A wonderful picture of a member of the U.S. Navy leaving his machine by parachute. The pilot parachute which actuates the main parachute can be seen leading on the extreme left.

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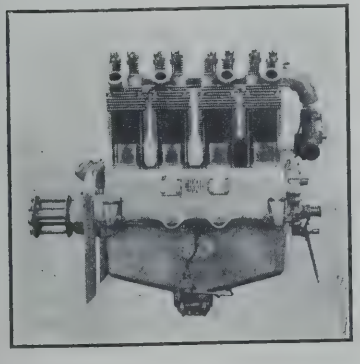
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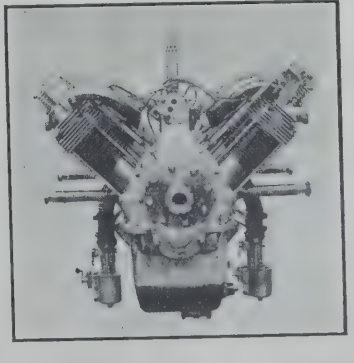
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

MAJOR F. A. DE V. ROBERTSON of *The Manchester Guardian* confirmed this argument by recalling that Australia subsidised lines where no communications existed and that now the discontinuance of those lines would be regarded as a public calamity. Greater publicity, not in the sense of ordinary advertising but by letting the public know what was being done, would win the confidence of the public.

MR. COLEBROOK of *The Times* agreed that the public must be assured of reliability. Then the City would put money into aviation. He suggested that we might subsidise small air lines in the Colonies if helped by Colonial Governments.

SIR SEFTON BRANCKER in reply said that so far as he was concerned he really did not care whether the D.C.A. was to be turned over to the Board of Trade or the Ministry of Transport. Mr. Sopwith and Mr. Sayers had both spoken about private flying. He was all in favour of private flying without let or hindrance.

So far as his department was concerned they would not be averse to abolishing air worthiness certificates and so forth for internal private flying. But they had had international commitments, and though they might allow a man to fly to Brighton without certificates trouble would arise when the same man wanted to cross to France.

There was a good deal of talk as to throttling effects of licensing but the talkers never came down to brass tacks. Give him a definite case showing that the regulations had the repressive effect and they would see about it. At present the Industry groaned about restrictions, but were not anxious themselves to take over the Government's responsibilities.

He said that Major Turner seemed to hint at irregularities, if not worse, in his relations with Miss Aviation. He had once in France made a remark which might appear to warrant that suggestion, but their union was now at least perfectly in order and he had " made an honest woman " of the lady.

So far as Mr. Short was concerned he could assure him that if he had any proposition to put before the D.C.A. he would undertake to meet him at 9, 6, 4 or even 2 a.m. if he so desired, and that any lack of American rapidity in negotiations would not be caused by slackness in his department. He was very glad to see Mr. Holt Thomas again. As to his landing fields suggestion, there was in fact a sufficient number of known fields along their present routes to give the equivalent of a landing ground every ten miles. He did not regard that as of any particular value—they had got to cut out forced landings.

As to Mr. Handley Page's suggestion, by all means let the R.Ae.C. take over control of private flying. If the Club would come along and make a definite proposal to take over part of his work he should certainly consider it.

Major Hemming and Mr. Sayers had both stressed the matter of survey work. He was all in favour of it, but, as both these gentlemen had pointed out, this branch of aviation paid its way. What did they want him to do about it? They both said they disliked official interference, and presumably anything he did would be interference. He was trying to get Imperial communications by air and the announcement just made in Parliament as to the Cairo-Karachi contract showed they were going ahead.

He entirely agreed with Mr. Barnard. They were developing wireless directional control and overcoming the difficulties of fog flying. They would in time cut out forced landings. But he thought pilots should not be too impatient. When they had succeeded in these tasks flying would be a chauffeur's job, and the present type of pilot would find his work gone.

He was not quite sure what Mr. Sayers wanted. As to secrecy in regard to finances the report of Imperial Airways for their first year would shortly be published. This should give the required information. As to attempting the development of air transport services which did not steal traffic from established transport agencies he wished someone would do it. If the contention was sound such undertakings ought to pay without artificial encouragement. The services we were running needed active support, that was why they supported them. He agreed with the last two speakers as to the importance of publicity and of reliability as the best form of publicity.

IMPERIAL AIRWAYS AND THE GOVERNMENT.

The two announcements made in the House of Commons by Sir Samuel Hoare, Secretary of State for Air, regarding the new subsidy scheme for Imperial Airways, and the placing of the contract for the Cairo-Karachi service with that firm are of very considerable interest.

Under the terms of the original agrement with Imperial Airways, the subsidy of £1,000,000 spread over ten years was conditional on the firm flying an average of at least 1,000,000 machine miles per annum over the whole period. Under these conditions there was a definite inducemeut for the running of the smallest possible machines. It would obviously cost a good deal less to run 1,000,000 D.H.50 miles than 1,000,000 Vickers Vanguard miles. In recognition of this fact the change has been made to a h.p. mile basis. Taking 425 h.p. as the rating of the engine of the present standard machine—approximately a D.H.34—the original 1,000,000 miles is converted into 425,000,000 h.p. miles.

The result is that Imperial Airways can earn their subsidy either by flying 1,000,000 miles with a 425 h.p. machine, 500,000 miles with machines with two such engines, and 333,333 miles with machines with three engines of the same power.

It is fairly obvious that the Air Ministry has come to the conclusion that three-engined machines ought to be used in passenger services, and with the engines actually available this inevitably means using machines of larger power than the majority of those now in service.

If Imperial Airways were required to run this full million miles per annum with the larger and more expensive machines, their costs would undoubtedly rise and with them the difficulties of making ends meet. Therefore the Air Ministry could scarcely hope to induce them to run such aeroplanes unless they either increased the subsidy, or reduced the mileage required in close proportion to the cost per machine mile. They have perhaps inevitably chosen the latter.

Unfortunately the change will necessarily lead to reduced frequency of service. This is bound adversely to affect traffic on the short European air routes. The only advantage possessed by air over surface transport is the possibility of saving time. The time which can be saved by air transport is not measurable simply in terms of reduced travelling time. When a man is in a hurry to get from London to, say, Paris, it is usually for one of two reasons. Either he wishes to reach Paris by a fixed time, leaving London as late as possible, or he wishes to reach Paris as early as possible from a determined starting time.

If there is a train from London at 11 a.m., reaching Paris at 6 p.m.—seven hours' journey time—and if the aeroplane can transport a man over the same distance in four hours, the apparent saving of three hours is not effective for both cases unless at least two aeroplane services are run to compete with the one train. The man who can leave at 11 a.m. but wants to get to Paris as soon as possible, gets the whole benefit of air travel from a service departing from London at 11 and arriving in Paris three hours before the train. The man who must get to Paris by 6 p.m. but wants to leave London as late as possible has no use for this service—he needs a service leaving three hours later than the train and arriving at the same time.

If a third intermediate service is run between these two, the saving in time in some cases will be greater than three hours. The man who must be in Paris a little before 6 p.m. must travel by an earlier train and will waste time in Paris which can properly be added to the journey time. If the intermediate aeroplane saves some of the wasted time, that saving must be added to the saving of three hours in actual travel.

Thus the more frequent the service given, the greater the real value of the aeroplane high speed. On this account it can be predicted with certainty that one service with a large machine will not attract so large a traffic as a more frequent service with smaller machines. It is obvious that the frequency of service required to give full effect to the superior speed of the aeroplane depends on the actual saving in time that is possible. On the short Continental route, where a few hours per journey alone can be saved, and where the train and boat services are fairly frequent, three to six services a day are required to give full effect to the aeroplane's superiority.

On long journeys—say on a London-India route—where the time saved may be weeks per journey, and where the steamship and other services are relativly infrequent, very much less frequent services will suffice. Imagine a service to India taking one week as against three weeks by sea, and suppose that the steamer service is bi-weekly. A weekly aeroplane service will then in the worst case be capable of saving any traveller at least 1½ weeks.

From these considerations it would appear that for the present Continental services the effect of the new subsidy arrangement, with its encouragement of big machines and infrequent services, will tend to depress traffic revenue. But the definite contract to exploit the Cairo-Karachi route is to be taken as showing that it has been realised that the short Continental routes lead nowhere, and that, if real transportation is to be carried on in the air, long-distance routes must be served. It will, however, be a long time before the London-Paris and the Cairo-Karachi route can be linked up, and in the interval it must be feared that the present tendencies of Air Line policy in this country will not lead to any great increase in traffic.

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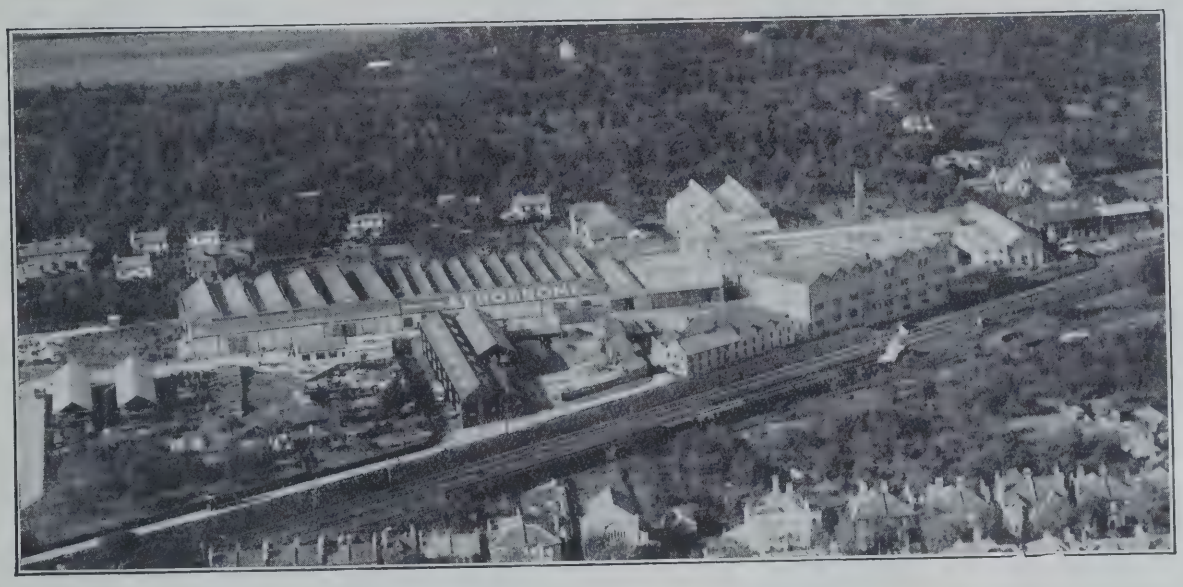
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THE ROYAL AIR FORCE.

The London Gazette

Dec. 15.

General Duties Branch.—Flt. Lt. R. E. Costa having successfully passed through the R.A.F. Cadet College, is granted a perm. comn as a Plt. Off., with effect from and with seniority of, Oct. 29; Lt. J. F. Fosbroke Pain, 1st King's Dragoon Guards, is granted a temp. Comn. as a Flg. Off. on seconding for four years' duty with the R.A.F. (Nov. 28) (substituted for notification in *Gazette* of Dec. 8).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—A. F. Hutton, G. W. P. Irwin (Aug. 14); G. W. R. Russell (Sept. 14); J. C. Marcy, D. Robinson (Sec. Lt., Glos. Regt., T.A.), (Oct. 14); V. B. Bingham-Hall, M.C. (Capt., Glos Regt., T.A.), A. W. B. McDonald (Oct. 15); A. N. Francombe, H. E. N. Burton, C. S. Staniland, V. G. H. Gee, R. A. Ford (Nov. 15); R. R. Bennett (Nov. 21).

Plt. Off. on probation E. G. D. Stewart, M.C., is confirmed in rank (Nov. 7); Flg. Off. L. Hamilton, M.B.E., D.F.C., is restored to full pay from half-pay (Sept. 15) (since resigned); Flg. Off. C. H. Whitlock is placed on the retired list at his own request (Dec. 16).

The following Flg. Offs. are transferred to the Reserve:—Class A.—L. Whitfield (Dec. 16). Class C.—S. G. Williams (Dec. 9).

Plt. Off. D. W. Trotter resigns his S.S. comn. (Dec. 16); Flg. Off. J. L. Hayward (Lt., R.A.) relinquishes his temp. comn on return to the Army (Nov. 28); the S.S. comn. of Plt. Off. on probation F. O. W. Stokes is terminated on cessation of duty (Nov. 11).

Accountant Branch.—The following are granted perm. comns. as Plt. Offs. on probation, with effect from, and with seniority of, Dec 7:—D. C. Stone, C. L. Dook, H. R. Withers, A. E. Fairs, M.C. (Lt. and Qrmr., R.A.M.C., T.A.), J. P. Cave, D. Sender, J. A. Stephenson, A. Ll. Derry, K. A. Jackman, W. F. Quilliam, J. Lambie (Capt., Indian Army, retired), H. Crowther, R. Cassels. Plt. Off. on probation R. C. Dickinson is confirmed in rank and promoted to the rank of Flg. Off. with effect from Dec. 3 and with seniority of Nov. 10, 1925.

Medical Branch.—The following are granted S.S. comns. as Flg. Offs. for three years on the active list, with effect from, and with seniority of, Dec. 1:—E. A. Aslett, H. M. Levy.

Reserve of Air Force Officers.—The following are granted comns. on probation in Class A, General Duties Branch, in the ranks stated (Dec. 15):—Flg. Off.—D. Davidson. Plt. Off.—S. L. F. St. Barbe. A. F. Waghorn is granted a comn. in Class AA, General Duties Branch, as a Plt. Off. on probation (Nov. 30).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—R. W. Jones (July 9), H. Jones (Sept. 11), J. J. Hickman (Sept. 18), L. D. P. Joseph (Sept. 18), W. G. Robinson (Sept. 20), J. W. Brown (Sept. 20), H. D. Morley (Sept. 21), M. C. Kerr (Sept. 24), J. M. Mathieson (Sept. 25), R. A. Whitehead (Sept. 26), A. J. Stubbings (Oct. 1), R. A. Jacquot (Oct. 1), K. C. Whitwell (Oct. 13), S. Barker (Nov. 5), F. James (Nov. 5), M. H. Edmunds (Nov. 5), J. Paterson (Nov. 9), J. H. Taylor (Nov. 15), P. H. Davies (Nov. 25), A. M. Mackay (Dec. 3). Flg. Off. A. J. R. Adam is confirmed in rank (Oct. 2).

The following Flg. Offs. are transferred from Class A to Class C:—E. V. H. Jarvis (Oct. 8), W. McL. Hirons (Nov. 6). Flg. Off. F. Ll. Hudson is transferred from Class C to Class A (Dec. 6). The comn. of Plt. Off. on probation W. J. Youldon is terminated on cessation of duty (Nov. 3).

Appointments.

Week ending Dec. 21.

General Duties Branch.—Wing Commander E. W. Norton, D.S.C., to No. 70 Sqdn., Iraq, to command, 1/12.

Squadron Leader J. M. Robb, D.F.C., to R.A.F. Depot on transfer to Home Estab., 20/11.

Flight Lieutenants D. W. Clappen, to H.Q., Special Reserve and Auxiliary Air Force, 10/12. D. W. King, to H.Q., Coastal Area, 10/12. H. E. Forrow, to H.Q., India, 8/11. W. M. Fray, M.C., to Station H.Q., Bircham Newton, 4/12.

Flying Officers P. J. Bett and A. H. Wheeler, to No. 2 Sqdn., Manston, 15/12. A. R. Hamilton, J. H. Powle and C. H. Tighe, to No. 13 Sqdn., Andover, 15/12. G. Combe, to R.A.F. Depot on transfer to Home Estab., 11/11. R. H. Bibby, to C.F.S., Upavon, 1/12.

Pilot Officers R. D. Adams, E. Addis and C. A. Bell, to No. 16 Sqdn., Old Sarum, 15/12. R. L. Burnett, to No. 2 Sqdn., Manston, 15/12. J. G. Chamberlain and D. C. Shaw, to R.A.F. Base, Calshot, 15/12. S. A. V. Evans and L. F. T. Price, to No. 56 Sqdn., Biggin Hill, 15/12. D. S. Green, to No. 43 Sqdn., Henlow, 15/12. A. J. Holmes, N. K. Howard and C. P. Vines, to No. 4 Sqdn., S. Farnborough, 15/12. J. C. Noel, to No. 29 Sqdn., Duxford, 15/12. J. H. C. Purvis and L. A. Walsh, to No. 25 Sqdn., Hawkinge, 15/12.

Medical Branch.—Wing Commander W. W. Shorten, F.R.C.S. (E), to R.A.F. Hospital, Halton, 7/1.

Squadron Leaders B. F. Beatson, D.T.M., to I.A.A.D., Henlow, 8/12. T. C. St. C. Morton, M.D., D.T.M. and H., to R.A.F. Hospital, Halton, 12/12.

Flight Lieutenants (Dental) A. Williams to R.A.F. Depot on transfer to Home Estab., 15/10. H. H. Mallett, to No. 5 F.T.S., Sealand, 17/12.

Air Appointment.

The Times of Dec. 16 states that Air Commodore R. H. Clark-Hall, Officer Commanding the R.A.F., Mediterranean, has been appointed a member of the Nominated Council of Malta.

Air Commodore R. H. Clark-Hall, C.M.G., D.S.O., was Chief Staff Officer to the Air Officer Commanding the R.A.F., Middle East, from December, 1924, until his appointment to command the R.A.F., Mediterranean, as from Nov. 14, 1925.

The Staff College, Camberley.

The following officers of the Royal Air Force have been nominated for admission to the Staff College, Camberley:—

Wing Cdr. O. T. Boyd, O.B.E., M.C., A.F.C., and Sq. Ldr. V. S. E. Lindop.

The Iraq Mandate.

The Council of the League of Nations, at a meeting at Geneva on Dec. 16, decided that the provisional boundary, known as the Brussels line, is to be the northern frontier of the British mandated territory of Iraq. The line will only become definite if the British within six months assume responsibility for Iraq for another period of 25 years, or less if Iraq be judged by the Council to have become qualified for membership of the League.

In view of the R.A.F.'s permanent buildings at Hinaidi, Basrah, and elsewhere, the British Government seems to have assumed some two or three years ago that our Mandate is to last for another hundred years at least.

An Inspection at Cranwell.

Air Vice-Marshal T. I. Webb-Bowen, C.B., C.M.G., Air Officer Commanding the Inland Area, R.A.F., inspected the passing-out term of Flight Cadets at Cranwell on Dec. 15.

Addressing the Cadets after the Inspection and prize-giving, Air Vice-Marshal Webb-Bowen congratulated them on the Commandant's good report and said that he was very pleased with the parade and with the Cadet's sense of discipline.

In the course of his report, the Commandant, Air Commodore A. E. Borton, C.B., C.M.G., D.S.O., A.F.C., said that the total strength of the Cadet College was 102 of whom 25 were due to pass out this term. The total number of flying hours during the term had been 1,499 hours and 45 minutes and the Cadets now passing out had averaged 70 hours 46 minutes. He hoped that various modifications in the syllabus would have beneficial results.

With regard to engineering subjects Cadets must apply themselves more energetically to compensate for lack of knowledge on entry.

The discipline had been good and officers and non-commissioned officers had carried out their duties in a very satisfactory way.

The Sword of Honour was awarded to Flt. Cadet Under-Officer E. B. Webb; the R. M. Groves Memorial prize to Flt. Cadet Corporal J. C. Wallace; the Abdy Gerrard Fellowes Memorial prize to Flt. Cadet H. G. Wisber; the prize for English and History to Flt. Cadet Corporal C. M. Heard, and the Aeronautical Engineering passing-out prize to Flt. Cadet H. D. Spreckley.

A Fatal Accident.

The Air Ministry regrets to announce that as the result of a collision in the air at Manston, near Ramsgate, Kent, between two Avro machines of No. 9 Sqdn., Manston, on Dec. 16, No. 345286 L-AC. Edward Emanuel Dunn, the pilot of one of the machines, was killed, and No. 342140 L-AC. William Edward Parrish, the pilot of the other machine, was seriously injured.

The establishment of No. 9 (Bombing) Sqdn. includes four airmen pilots.



A REMINISCENCE.—The Lord Thomson, who was Air Minister in the Socialist Government, alighting from a Vickers Vernon during a tour of the East while he was in office.

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"CREDE EXPERTO."

By "Berkeley."

"The Strategy and Tactics of Air Fighting." By Major Oliver Stewart, M.C., A.F.C. With introduction by Wing Commander W. G. Barker, V.C., D.S.O., M.C., A.D.C., Royal Canadian Air Force. 8vo. iv+195 pp. Longmans, Green and Co. 6s. net.

Military aviation has been curiously unfortunate in its literature. Many books dealing with the new problems have appeared but of these few have had definite value and many have been the products of over-heated imaginations dealing in dreams and unhampered by knowledge. Those with adequate education in the art of war have preserved a modest silence and, in their place, "experts" with rapid pens and an attractive sterility of brain have produced masses of manuals for the ignorant by the ignorant.

The Royal Air Force is still in its very early infancy and on the foundation now being prepared depends its future efficiency as a weapon of war. Strategically it has no problems which are not common to the other armed services but it has yet to develop tactical methods specially suitable to its peculiar attributes. It is a new Service and it is attracted by all that is new and repelled by the lessons of past days. Its *personnel* is a little apt to dismiss the accepted theories of war merely because they are old, without any examination of the reason for their acceptance.

Major Stewart has no faith in the past and with some knowledge of effects and none of causes has set to work to put the world to rights in all matters which concern air fighting. He realises that the title of his book is open to criticism and he defends it with a series of statements which prove so clearly his adherence to the journalistic conception of war that one cannot help but be pleased that they appear on page 3 in time to save the reader from a further study of the book as a serious contribution to military science.

He says :-

Etymologically the word strategy refers to the leading of an army, and the word tactics to the arranging of an army. I therefore apply the word strategy to that branch of air fighting which consists in the preliminary leading of a patrol of aeroplanes in such a manner as to allow the enemy to be engaged under the most favourable conditions; and I apply tactics to the manœuvring which takes place after the issue has been joined In using the two words strategy and tactics as I have done I have not strained them out of their true meaning, indeed it seems that the words apply to the new kind of warfare with an exactness they were beginning to lose in the old.

Each profession has its vocabulary in order that its members may have unvarying definitions for the words they use in their daily work. Such a vocabulary is of the highest importance in the services, as ambiguity would be a definite step to disaster. Brevity in expression, either written or spoken, is essential.

The military definition of the words "strategy" and "tactics," can best be given in the words of Sir Edward Hamley, "The Theatre of War is the province of strategy—the Field of Battle the province of Tactics."

No amount of dogmatism on the part of Major Stewart can make proper the use of two words of major importance to describe two branches of tactical theory for which, moreover, there are adequate expressions. All the operations which he describes in the book are well within the Comte de Guibert's phrase, "*La grande tactique, la tactique des mouvements, celle qui fait gagner les combats.*"

A little later he says :—

It is remarkable that many professional flying men, both in and out of the Service, are ignorant of the existence of strategy and tactics in the air This is partly because, during the last few years, war subjects have been avoided rigorously in conversation and in writings as a natural result of the urgent desire to forget about the war

One may expect with some justification that those who undertake the compilation of a book dealing with warlike affairs should have some knowledge not only of past events but of contemporary thought in regard to the art of war. But Major Stewart is apparently prepared to rush along the road with none of the timidity of angels in strange places, trusting entirely to his own genius.

Had he referred to the files of such journals as *The Army Quarterly*, the *Révue Militaire Générale, La Révue Militaire Suisse*, or the *Militar Wochenblatt*, to mention only a few of the dozens of periodicals dealing with military affairs, he would find that the lists of the books published during the past seven years devoted entirely to the art of war are lengthier than those of any similar period in pre-war days.

In Germany, France, the United States and in this country innumerable works of high value have appeared and have, he may be surprised to hear, sold freely among the general public. It would have been better had Major Stewart said that he and his friends in their natural desire to forget the war did not read books of military history.

In his view, supported, he says, by "many able writers upon modern warfare (Pierrefeu* among them)" the day of the mobile battle is over, and—

In all future wars of any magnitude, there will be, soon after the first shock of battle, a fixed line, upon either side of which infantry will be entrenched in exactly the same way as during the late war. It is likely that future wars will be either repetitions or extensions of the last war, and it is extremely unlikely that any return to Napoleonic conditions will occur. Systems of warfare do not develop backwards

Does he remember that the civilian military experts in the days following the South African War. 1899-1902, prophesied that in view of the improvement in firearms of precision all future wars would consist of long-range battles, that the *arme blanche* was obsolete and that shock action would be impossible? And it took the military authorities some ten years to obliterate the so-called lessons of that campaign.

The Great War was itself a reversion to a past system and he will find, if he cares to make the necessary references to military textbooks, that there is a curious parallel between the operations in France and Flanders, 1914-18, and the siege warfare of the days of Louis XIV. Vauban's plans for the reduction of fortresses were directly applicable to the conditions obtaining nearly two hundred years later and over the same terrain.

To what group of Napoleonic conditions does he refer? Surely he cannot think that the Emperor confined his systems of war to one scheme. The truth is that prophecy as to the methods of future wars is both futile and dangerous. The soldier's proper duty is to make himself familiar with those basic principles on which all systems of warfare depend.

His dogmatism, which is absolute, leads him to condemn the R.A.F. Training Manual, Part II, because, he says, it mentions only "a few of the more obvious tactical manœuvres but what information it does give is mostly vague and often inaccurate." He thinks that "the strategical and tactical theories advanced recently in the Royal Air Force" should not be accepted until such time as their "efficacy" can be proved, presumably in battle.

But battle is the test of all warlike theory and it may not be unfair to suggest that his own theories must rely for proof on exactly the same test. The Royal Air Force, whatever eror there may be in the views expressed by its senior officers, must of necessity be in closer touch with the realities of military aviation than any civilian or retired officer, be their ability what it may.

There is in truth a positive danger in the formulation of rigid tactical rules at the present time. Military aeronautics, despite the progress induced by the war, has not yet developed sufficiently to permit of safe prophecy as to the lines on which development will continue. Methods of aerial fighting may alter considerably in the next decade and, therefore, vagueness in tactical instruction has something in its favour.

There is, on the contrary, nothing to be said against rigid training in all manner of aerial manœuvres that each unit may become a highly-disciplined part of a great machine. So may individual eccentricity of action be suppressed and a general co-ordination of purpose be introduced. The smoothness of manœuvre and the unit discipline produced by work on the parade-ground in the Army, and the flexibility in action gained by the constant practice of apparently tedious evolutions by His Majesty's ship sat sea have a greater bearing on success in battle than is commonly admitted.

Hence aerial drill—which can be arranged with relative simplicity even in these present times—is of much higher value than experiments in tactics based on the limited experience gained by a new and undeveloped arm during a war in which the scope of operations on all the important fronts was definitely restricted by the early appearance and long endurance of siege conditions.

There is little space to examine in any detail Major Stewart's proposals for a scheme of air tactics. But some examples may be given which will be adequate to show his general ideas.

In an early chapter he deals with the question of protection for photographic, bombing and reconnaissance aeroplanes during their periods of work and suggests that there should be a network of fighting patrols "between enemy territory and our own territory."

Has he made any calculation as to the number of fighting machines which would be absorbed by this negative form of defence? He continues,

Patrols should be given instructions to watch the sky over the line between *x* and *y* between the heights of *a* and *b*. The pilots should not be told to *patrol* that area but to *watch* it

But surely in all well-regulated armed forces the normal function of a patrol is to watch, and the line over which it is to operate is indicated merely for simplicity of action and economy of force.

*[M. Pierrefeu was a journalist of no military experience, attached to G.Q.G. (General Headquarters) to issue the French official bulletins. He can in no sense be regarded as a military writer.—Ed.]

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

In regard to defence by night, he says :

The French method of detection at night is briefly as follows: Special lamps which throw very wide beams (not searchlights) are directed upwards from the ground. A friendly machine flies high over the lamps and, when the enemy machine passes between the friendly machine and the lamps, the enemy machine shows as a shadow crossing a lake of light.

What is there to prevent the enemy machines flying at a height equal or in excess of that of the defender? Even though bombers might of necessity be lower, their protective escorts would naturally choose under such defence conditions to fly high. Also does Major Stewart know that the scheme of which he speaks has not as yet passed satisfactorily the experimental stage?

In another place he says,

Had those officers who hold that aeroplanes should never be on the defensive understood the strategy of air fighting, they would have understood also why, in the air, the best means of defence is never offence; why when defensive strategy is necessary it is impossible to use offensive measures?

Comment on so definite a reversal of an elementary principle of war is unnecessary.

In connection with anti-aircraft defence he says,—

When flying low, anti-aircraft gun fire is usually inaccurate, and when flying only just above the trees and houses its effect is not worth consideration rifle fire and machine-gun fire are dangerous when attacking trenches and aerodromes, and since the time taken by the flight of the bullet is small, dodging, as it is practised high up, is almost ineffective.

There is no reason whatever why gun-fire on low-flying targets should not be as accurate as that against aircraft flying high. It is true that as the Manual of Anti-Aircraft Defence, Part I, says, "a small error in the calculation of height will result in a very considerable error in fuze range." Nevertheless, good results should be and are obtained. In regard to rifle and machine-gun fire the danger to aircraft is due to the volume of fire rather than to the time of flight of the bullet.

On page 172 he refers to the renunciation of the use of explosives, incendiary or expanding projectiles of small calibre and weight by certain nations at St. Petersburg in 1868, and at the Hague in 1899, and is obviously unaware of the clauses in the agreements which decreed that in any war in which any of the belligerent nations were non-contracting parties, the renunciation became automatically void for others nations engaged.

In prophecy as to the future he talks of aeroplanes armed with big guns, because the bomb is "grossly inaccurate." He forgets apparently that the attainment of accuracy in the case of a gun fired from an aeroplane is regulated by approximately the same conditions, such as altitude, range, drift, density of atmosphere, rotation of the earth and all the other problems of the aerial bomber, which are the same as those of a land gunner.

A salvo from one hundred of his big guns would, he thinks, "flatten out buildings like the Houses of Parliament as a steam roller would flatten out a sand castle." He is probably right, though it seems rather a waste of good projectiles. But he has forgotten that to each offensive development there is an answer and that the defence would not remain idle unless the nation were already defeated.

His proposed gun for fighting aircraft "will be of *smaller* bore than the modern machine-gun. It will be a composite weapon consisting of several barrels and will have a terrific rate of fire." He avoids with some care any explanation as to the cooling arrangements for so formidable and eccentric a weapon nor does he say whether he has devised any adequate method of loading or of carrying the immense number of bullets to be vomited forth during even a small engagement.

"In fact, the chief characteristic of fighting in the air in the future will be its dazzling rapidity." It will be if Major Stewart's principles of "strategy" and tactics are adopted by any *one* nation in a future war.

It is an amusing book and may well have been written in irony. But it is a dangerous work for Royal Air Force officers not gifted with a strong ironic sense.

Among its few virtues are a number of pen and ink sketches and diagrams of air fights by Mr. Leonard Bridgman.

OXFORD IN NORTH-EAST LAND.

"With Seaplane and Sledge in the Arctic." By George Binney. 287 pp. 50 illus. Hutchinson and Co. 21s. net.

Mr. George Binney, the author of this excellent record of exploration and adventure in North-East Land, was the leader of the Oxford University Arctic Expedition, which it describes. Mr. Binney was the secretary and organiser of two earlier expeditions but the 1924 one, with which this book is concerned, was the first attempt to use a seaplane in the Arctic.

Professor W. J. Sollas, F.R.S., in the preface, says that the purpose of the expedition was threefold. First to test the possibility of Polar survey from the air. Second to observe the form and structure of the land, etc., and finally to serve as a school for explorers.

Professor Sollas affirms that the first purpose of the expedition was successfully accomplished. This appears to be rather a debatable point. The author himself, in a summary of points to be considered in the organisation of aerial work in the Arctic says that the use of aircraft will entail delay and inconvenience.

On the other hand he points out that the aerial photographer can take survey photographs of 100 miles of coast in three hours.

The whole question really turns on a knowledge of the conditions to be encountered and sufficient machines, engineers and spare parts to meet all emergencies.

The Oxford University Expedition was handicapped at the outset by only being able to take one small seaplane with them. She was underpowered for the equipment they wanted to carry, and the sledge and wireless set, as well as one passenger had to be discarded before she would get off.

Finally an attempt was made to fly from Liefde Bay to Green Harbour. After 59 minutes in the air and half-way to their destination, the engine failed and for eleven hours the machine and crew were floating helplessly in a choppy sea. It took 150 hours of skilled labour and 40 hours of unskilled labour to get her into the air again. While these repairs were taking place four of the six days in which the weather was possible for aerial photography passed. In the two remaining days that were not fog-bound the crew of the seaplane took aerial photographs over 70 miles of North-East Land coast line.

The second accident occurred in Treurenberg Bay, where owing to a choppy sea caused by cross wind and tide in the bay she failed to rise and clear a low earth cliff, and smashed her undercarriage. The leader of the expedition was prepared to abandon her there and then, but he deferred to what he describes as the "unquenchable optimism of the airmen."

Capt. J. C. Taylor (now of Jersey) the ground engineer who did magnificent work the whole time under the worst possible conditions, asked for a clear week in Liefde Bay in which to rebuild the machine. He put in 120 hours with 200 hours of unskilled assistance and a test flight of 1¼ hours was carried out. A reconnaissance flight was subsequently undertaken and some temperature readings made. A few hours later the seaplane struck a piece of drift ice and holed her starboard float. As preparations were already advanced for leaving the camp the engine was taken out and the machine finally abandoned.

The diaries of various members of the three sledging parties are incorporated in the book and make as good a yarn as any of Jack London's Yukon stories. During the repairs to the seaplane, the pilot, Mr. A. G. B. Ellis, "was accused of being a cook—and found guilty." He was not a success in this capacity and his accusers suffered accordingly.

With regard to the second purpose of the expedition one does not pretend to understand strata, saxifrage, parasitic hymenoptera, and other excuses for making such a very cold journey, but will take the party's word for it that their investigations were successful.

In their final purpose, the training of explorers, Oxford University seem to have won on this occasion only by about 33 points to 3.—C. M. MCA.

AIRCRAFT AND THE RED CROSS.

An interesting series of articles are now appearing in *The World's Health*, a monthly review of the League of Red Cross Societies. The series began in the May number of this year with an article on "Aerial Ambulances in France." The second article appeared in July and was called the "Ambulance Aeroplane," by Dr. Ainé Gauthier. "The Aerial Ambulance in Sweden," was the third of the series and appeared in October.

The fourth article appears in the current issue (December) and is entitled "Aerial Health and Relief Work."

This article, which is by H. C. Loeffler, describes the uses of aircraft in the various disasters of recent years. Aeroplanes were able to supply information and give valuable assistance after the two bad Japanese earthquakes in 1923 and 1925. Photographs were also taken from the air for the purposes of reconstruction work.

The adaptation of the aeroplane to mine rescue work has been studied by the United States Bureau of Mines. Landing fields have been located in several mining districts and trial flights have been made carrying trained rescue men equipped with oxygen apparatus.

The use of aeroplanes for rushing medical staffs and stores to isolated districts during epidemics of influenza and diphtheria is also advocated and examples of this work having been successfully accomplished are quoted.

It is noticeable, however, that on most of these occasions the aircraft used have been supplied for the emergency by the Fighting Services of the various countries. The League of Red Cross Societies does not appear to have any aeroplane ambulances of its own.

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AIR COMMUNICATIONS.

A lecture was given on Dec. 16 at the Royal United Service Institution by Sir W. Sefton Brancker, K.C.B., A.F.C., on "Air Communications in the Middle East."

In the absence of Sir Samuel Hoare, who was making an important announcement in the House of Commons, Sir Philip Sassoon, the Under-Secretary of State for Air, was in the Chair.

The first part of Sir Sefton Brancker's lecture consisted of an outline of the history of air transport, illustrated with lantern slides showing tables of figures and curves. Some of the charts were particularly illuminating, especially the one which showed the steady decrease in British passenger air traffic which followed the grant of the Government subsidy as a monopoly. The charts and tables were clearly and concisely explained by the lecturer.

Describing the activities of other European countries, Sir Sefton said that Germany's policy appeared to be dictated by the desire to sell machines. France showed a desire to keep in touch with her Colonies and five million letters had been carried in a year by the French air route to Morocco. British policy was purely commercial and was an endeavour to make civil aviation pay its own way.

A table of operating costs showed that fuel and oil accounted for 30 per cent., maintenance and overhaul of engines 44 per cent., maintenance and overhaul of aircraft 20 per cent., and miscellaneous 6 per cent. of the total.

The weather was the chief factor against efficiency, and accounted for the fact that an efficiency service of only 87 per cent. was possible on the Continental air routes in winter as against the 100 per cent. efficiency all the year round of two air routes in Australia.

With regard to air communication with India, Sir Sefton Brancker said that the original scheme included three alternative routes. The Northern route was impracticable on account of the hopeless attitude of the various officials in Russia. The Southern route, which they had covered on their return journey, meant flying over very mountainous country, and also crossing Germany, which was at present impossible owing to the "nine points." The third possibility, that of a seaplane service from Marseilles, was ruled out on account of the heavy expense of supplying the two types of aircraft.

The present scheme avoided all the domestic problems of Europe, and would work from Cairo in connection with the P. and O. and Lloyd-Triestino sea service to Port Said.

Owing to the scarcity of safe landing grounds near the Persian Gulf, Imperial Airways had decided that three-engined machines would have to be used on that part of the route. As this would add considerably to the cost, the service would only be run fortnightly at the start.

Sir Sefton Brancker said that he had met with considerable enthusiasm from the countries over which the route would pass. Egypt, Palestine, Iraq and Persia were all prepered to supply, maintain and guard aerodromes and refuelling stations. The British Government would retain a small part of the subsidy and make itself responsible for the equipping, maintaining and staffing of wireless stations, etc., on the route.

He thought that India would be certain to continue the route from Karachi to Calcutta.

In conclusion, Sir Sefton Brancker pointed out the value of Imperial Air Routes. He said that they offered facilities for refuelling Air Force Units in time of war. They could always be converted into auxiliary units of the R.A.F. and used as troop carriers. Imperial Air Routes would also foster the British Aircraft Industry.

THE IDEAL COMMERCIAL AEROPLANE.

An aeronautical engineer, not without experience of design to official specification, writes :—

After hearing recently some of Sir Sefton Brancker's views, it becomes simple to draw up a specification for the ideal commercial aeroplane. A rough outline of its main features would be :—

The machine is to be of all-metal construction and of the simplest possible structural design, possessed of ample factors of safety in every part, and combining the highest degree of aerodynamic efficiency with the minimum of structure weight, thus securing the maximum pay-load capacity.

The metal employed in its construction should resist corrosion to at least the same degree as platinum, should have the ultimate tenacity of 5 per cent. nickel steel, possess a density not greater than that of helium, should be capable of being worked with the facility of plasticene, and should not be more costly than waste paper.

It will be an advantage if in addition to the above-mentioned physical qualities the material is arranged to have the optical qualities of "purdah-glass." This will permit the total enclosure of the crew without their vision in any direction being impeded by the structure, at the same time leaving the machine completely visible from the exterior. This latter quality is important on several counts, notably that it reduces the risk of collision between the aeroplane and birds not possessed by suicidal mania.

The machine shall be equipped with two (or preferably three) engines which are to be of Sir Sefton Brancker's "Infallible" type. The machine is to be capable of maintaining horizontal flight at a speed not less than 100 m.p.h., when fully loaded, with one or both (or all) of its engines stopped.

The engines shall consume the minimum possible weight of some cheap, easily procurable, non-inflammable, and otherwise innocuous fuel (the emanation from the Boardrooms of Air Transport Companies and from certain sections of the Air Ministry is suggested as complying with all these requirements, with the possible exception of the last).

The landing speed and initial climb of the machine are to be such that, fully loaded, the machine shall be capable of safely taking off backwards over a brick wall 20 ft. (6.1 m.) high, which is not more than 12 inches (30 cm.) behind the rearmost portion of the machine when at rest on the ground. The machine is to be capable of landing over the same obstacle and coming to rest on hard level ground at a distance from the wall not exceeding that specified in the case of taking-off.

The machine shall be inherently stable under all conditions of load. It shall respond instantly to every movement of all its controls, provided that these are used correctly. It shall take no notice of these controls in the event of their being used erroneously or mistakenly.

Complete dual control and accommodation for two pilots is to be provided. The machine is nevertheless to be capable of completing any scheduled journey safely and undisturbed in the event of both pilots simultaneously going mad. This quality is not to be affected by darkness or total lack of visibility, and an automatic device which will effectively incapacitate both pilots in the event of either of these conditions arising, is to be fitted.

The body, or fuselage, including the whole of the crew, passenger and goods space is to be provided with buoyancy adequate to secure its maintenance in the air in the event of any failure of the aerial structure which renders the machine incapable of continued flight. In addition, a homing instinct, adequate to secure return of this portion of the machine to the nearest aerodrome at a speed not less than 50 m.p.h. is to be provided.

It is distinctly to be understood that compliance with the terms of this specification is not to be held to exonerate the designers and/or constructors of any machine from responsibility for the satisfactory performance thereof. Any failure on the part of such a machine to achieve commercial success is to be attributed solely and exclusively to the defect of the the machine and not to any default on the part of the operating concern.

THE BLACKBURNE "THRUSH."

The Blackburne "Thrush," the new 1,500 c.c. engine designed for the 1926 Light Aeroplane Competition, successfully completed the Air Ministry's Type Test on November 10 last. This test was carried out according to the same schedule as is required in the case of normal aircraft engines, and included the full 100 hours' test, the taking of power curves, high and low speed tests, etc., etc., making a total of 108 hours on official test. The same engine had previously run over 30 hours, and the official report of the examination after stripping states that the engine was evidently fit to have continued tests for a considerably longer period without adjustment.

The Thrush is a three-cylinder air-cooled radial, developing 30 h.p. at 2,500 r.p.m. (normal) and 38 h.p. at 2,760 r.p.m. maximum. It has a bore and stroke of 81 m.m. by 97 m.m., and weighs with oil container and cooler 132 lbs. Its consumption is .58 pints of fuel and .03 pints of oil per h.p. hour at normal power, and develops a m.e.p. of 123 lbs./sq. in.

It appears to be a remarkably sound and simple job, and should give excellent results in machines of the type for which it is intended.

AIR SURVEYS IN THE EAST.

Mr. R. C. Kemp, of the Air Survey Co., Ltd., is now completing an aerial survey for the Anglo-Saxon Petroleum Co., Ltd., over a large area of their property in North Borneo, and he has entered into a further contract with the Government of Sarawak for the aerial survey of a large tract of land in Sarawak.

Mr. Kemp is the managing director of the Air Survey Co., Ltd., and has already surveyed the Irrawaddy delta, the Tenasserim Forests, and the Yenangaung river in Burma, and is in negotiation for other contracts in the East and elsewhere.

The pilots employed on the Borneo survey are Mr. F. P. Raynham and Captain Gaskell. Flg. Off. J. Durward, R.A.F., who was lent by the Government of India to act as chief photographer on the Irrawaddy survey, has recently transferred from the active list of the R.A.F. to the Reserve, Class B, in order to take up his appointment with the company.

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THE LIGHT AEROPLANE CLUBS.

THE LONDON AEROPLANE CLUB.

The total flying during the week was 10 hours 40 minutes. All through the week the weather was unfavourable and it was only at intervals that instructional flying could be given.

The following members received flying instruction :—L. J. C. Mitchell, Col. Turner, E. D. Moss, Mrs. Atkey, W. Hay, T. C. Elford, Miss O'Brien, C. E. Murrell, J. S. M. Michie, Major Beaumont, R. C. Presland, S. Bradshaw, E. Brough.

The following members flew solo :—Mrs. Eliott-Lynn, Major Beaumont, G. H. Craig.

G. T. Witcombe, pilot instructor, has returned to duty.

The A.D.C. Aircraft Co. Ltd. has kindly presented the Club with a sectioned Beardmore engine. This will be used for instructional purposes to show the internal working parts of an aircraft engine.

There will be no flying during the Christmas Holidays. Flying will be resumed on Tuesday, Dec. 29, 1925.

An informal dinner of the London Aeroplane Club was held at the Chanteeler Restaurant, Soho, on Dec. 15.

Major Beaumont was in the chair and about 50 members were present.

The Chairman announced that 729 flights had been made on 72 days between Aug. 19 and Dec. 1. Of this total 128 were test flights.

He also announced that a fund had been raised to make Christmas presentations to the staff of the Club. Presentations were then made to Mr. Perrin (Secretary), Mr. Sparks (Chief Instructor), Mr. Witcombe (Assistant Instructor), and Mr. Michie (Ground Engineer), each of whom made a short speech.

Major Beaumont in announcing the presentations said that he had met Mr. Perrin first at an air race meeting when Mr. Perrin lost a bet to him which he had not yet paid. He remarked that Mr. Perrin held the Moths for disposal in one hand and the iron heel of authority in the other

Of Mr. Sparks Major Beaumont said that he was the corner-stone of the whole Club not only in flying but by his cheery helpfulness on the ground. He was extraordinarily tactful and had managed to please everybody and his efficiency was shown by the way he taught people.

Of Mr. Witcombe Major Beaumont said that he had supported Mr. Sparks loyally in his work and he had inspired the members of the Club with confidence and feelings of esteem.

On the subject of Mr. Michie, the ground engineer, Major Beaumont said that he held an unenviable job, especially in Winter, and any glory he got was reflected from the performance of the machines which he tended. It was entirely due to Mr. Michie that the Club had so much confidence in its machines.

Members were then invited to ask questions of the staff and did so with varying degrees of after-dinner humour.

THE NEWCASTLE-UPON-TYNE AERO CLUB.

Flying for week ending Sunday, Dec. 20 :—"I.X," 7 hrs. 8 mins., "I.Y," 20 mins. Total, 7 hrs. 28 mins. This has been a particularly unfortunate week with either gales or snow, or both, throughout.

In spite of the snow-storm on Monday, Mr. W. T. Walton put in one hour dual with Major Packman. On Tuesday he again got in 1 hr. 35 mins. in two flights (dual) making a number of very successful practice landings. Mr. J. D. Irving had one hour's instruction, also making excellent practice landings.

The weather on Wednesday being slightly better, an improved attendance resulted. Mr. Walton and Mr. Irving each had one hour's dual, Mr. H. H. Leech 30 mins., Mr. W. Todd 15 mins., and Mr. W. Mackay 18 mins. secondary dual and 15 mins. solo; a 5 mins. test completed 3 hrs. 23 mins. for the day.

A gale blew all day on Thursday and in the afternoon Major Packman proceeded to London for renewal of his licence. Friday was, of course, a blank day owing to his absence, and in any case it was still blowing a gale.

Saturday brought a fresh snow-storm, but Mr. L. Smith and Major Packman braved it for half-an-hour (dual).

Sunday : Snow-storm all day.

Last week's report stated that engine No. 13 was to be overhauled. This, of course, will only be a top overhaul. There were no indications that this was necessary, but it is considered that it ought to be carried out on account of the time the engine has been running, the object in changing engines being to keep the Moth in service and allow of work on the engine being carried out as circumstances permitted.

A good number of members and friends spent an enjoyable evening on Wednesday, when the first monthly whist drive was held. Miss B. Stephenson won the Ladies' Prize and Major Brian M. Dodds beat all the other men by several fuselage lengths

THE MIDLAND AERO CLUB.

The following report of the Midland Aero Club's work has been received from Major Gilbert Dennison, Hon. Sec. :—

Opening Day Oct. 17, 1925. During the period Oct. 7 to Dec. 7, 1925, the following was done :—Dual flying, 82 hrs.; other flying, 7 hrs.

The following are further statistics :—Instructor 1, Flying days 48, Days fit for flying 33, Pupils' Solo 2, Pupils waiting first solo 1, Pupils taking regular flying instruction 12, Active Flying Members 36.

The Refreshment Room and Reading Room are now available for members.

No flying can be done on Saturdays owing to the fact that the Birmingham Parks Committee utilise the aerodrome for Sports on that day, but as soon as the agreement between the Air Ministry and the Birmingham Corporation is complete flying will take place.

At the present moment the Moths are being used solely for dual instruction and qualifying solos, as it is considered that with present equipment the Club is not justified in using their dual machines for other than training purposes.

LANCASHIRE AERO CLUB.

Flying took place on Wednesday, Friday, Saturday, Sunday. The weather has been bad, low clouds all the week.

Mr. Cantrill gave instruction to A. Goodyear 20 min., H. Hardy 1 hr. 30 min., P. Michelson 40 min., W. Colley 25 min., J. Wilkinson 10 min., D. Summers 15 min., C. Parker 15 min.

Mr. Scholes gave instruction to S. Crabtree 35 min., A. Macnair 55 min., F. Leeming 35 min., H. Stern 1 hr. Solo flights were made by Mr. Lacayo 25 min., J. Wilkinson 45 min., F. Leeming 15 min. Tests occupied 45 min. Total solo 1 hr. 25 min.; dual instruction total 6 hrs. 40 min. Total time 8 hr. 50 min.

There will be a special day for general members on Dec. 26, when it is hoped as many members as possible will try to be present.

AIR AFFAIRS IN PARLIAMENT.

In the House of Commons on Dec. 16, REAR-ADMIRAL SUETER asked the Secretary of State for Air whether he is satisfied that the present agreement with Imperial Airways, Limited, is functioning satisfactorily, and is such as to ensure the development of British civil air transport on a sound basis?

SIR S. HOARE : I am advised, on the basis of recent experience, that the sound line of development for regular air transport lines is in the direction of large high-powered machines, which can be run more economically and efficiently than a larger number of small machines of equivalent capacity. The Air Ministry found that the stipulation in its existing agreement with Imperial Airways, Limited, requiring the completion of a given mileage in order to qualify for the full subsidy, was threatening to discourage development on the lines described, as a simple mileage requirement puts a premium on the use of small machines. I have accordingly arranged recently with Imperial Airways to convert the mileage requirement of one million miles per annum into a composite requirement, which is regarded as a fair equivalent of 425 million horse-power miles per annum; this will allow the mileage of high-powered machines to count more heavily than that of low-powered machines, and will thus encourage the company to develop towards a self-supporting basis as the subsidy decreases. The amount of the subsidy and the general provisions of the original agreement remain unaltered. A supplemental agreement, modifying the term of the original agreement as above, is being prepared, and when the necessary document is executed I will lay it as a White Paper, with an explanatory statement.

REAR-ADMIRAL SUETER also asked the Secretary of State for Air whether he is yet in a position to make any further statement on the project for an aeroplane service between Egypt and India?

SIR S. HOARE : Negotiations with Imperial Airways, Limited, for a regular air service between Egypt and India had advanced sufficiently last August for a detailed survey of the route to be carried out in September by officials of the company and Air Ministry, and after consideration of the results of this survey definite heads of agreement for this service have been signed.

The most important new point emphasised by the survey was the great advantage which would result from the use of three-engined machines, which should make forced landings very improbable—a matter of prime importance on this unfrequented route. This, however, involves an increase of cost per machine, and, owing to the limitation of the money available, a consequent reduction in the number of machines and frequency of the services as compared with the project outlined to the House last July.

The agreement accordingly makes provision for a subsidy which can be earned by the company on the basis of a regular fortnightly service with three-engined machines for mails, goods and passengers, in each direction between Egypt and India via Baghdad and Basra.

This subsidy will, I hope, enable the company eventually to increase the frequency of its service to a weekly basis as traffic expands and as increasing income from that and other sources becomes available.

The maximum annual subsidy, to be earned by a stipulated degree of regularity in completed flights on each half of the route, will be £93,000. The duration of the agreement is to be for five years.

The three-engined machines will take some time to construct, and I do not expect the service to be in actual operation much before the end of next calendar year. The Air Ministry will, in the meanwhile, proceed with the items of ground organisation.

As soon as the agreement is executed in legal form I propose to lay it as a White Paper, with an explanatory statement.

LIEUT.-COMMANDER KENWORTHY : Does the right hon. gentleman propose to extend this service to Australia?

SIR S. HOARE : We shall have to see how the first stage works.

TROOP CARRYING BY AIR.

In the House of Commons on Dec. 17, in reply to a question by SIR F. SYKES, the SECRETARY OF STATE FOR WAR said that troop-carrying aircraft had not been employed in connection with Army exercises. The use of troop-carrying aircraft had been limited to occasions of emergency in Iraq where small detachments had been transported for considerable distances in this manner. The War Office and the Air Ministry were in close touch regarding the results of the experience in Iraq which had been valuable.

R.A.F. INSURANCE.

In the House of Commons on Dec. 17, the SECRETARY OF STATE FOR AIR issued the following written reply to REAR-ADMIRAL SUETER :—

I am glad to be able to state that, thanks to the friendly co-operation of the Life Offices Association, several companies of high standing have already intimated their willingness to quote rates of premium which represent a very substantial reduction on the rates previously quoted. For example, whereas hitherto an officer of the rank of squadron leader seeking cover against peace-time flying risks has, under the terms offered by many companies, been required to pay an additional premium of as much as five guineas per cent. annually on the sum insured, several companies now offer the same benefits in return for an additional payment of only two guineas per cent. The additional premium payable has thus been reduced by more than half. Further, this reduced additional premium is payable for five years only instead of over the whole period for which cover is desired, and once these five annual payments have been completed, the officer is fully insured against flying risks without any further additional payment whatsoever. I have every hope that other companies will very shortly be prepared also to offer substantially reduced terms. I am taking special steps to bring the greatly improved insurance facilities thus secured to the notice of all serving officers.

AIRSHIP CONTROL.

In the House of Commons on Dec. 16, in reply to a question by MR. GRANT, the SECRETARY OF STATE FOR AIR said that it was the practice to provide means by which rigid airships might be controlled from elsewhere in the event of accident to the normal control post, and a certificate of airworthiness would not be granted if this requirement were not satisfied.

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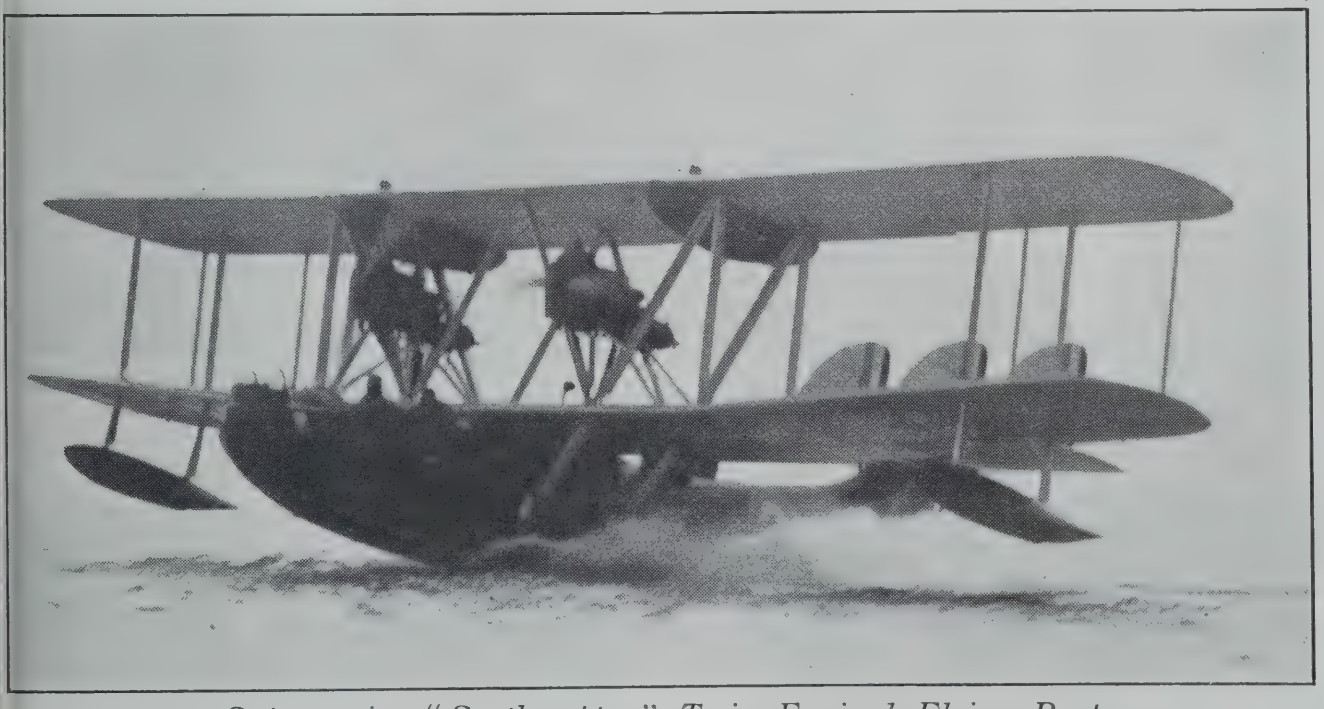
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SUPERMARINE

ENGLAND.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

[Note.—Owing to the exigencies of Christmastide the usual table of Commercial Aeronautics is held over until next week.]

Croydon Notes.

All the Air Lines will close down for Christmas Day so that there is likely to be Peace in the Air as well as on Earth on that day unless the Director of Civil Aviation feels that the spirit (Shell, of course) moves him in Ireland.

How one wishes one could get a glimpse of other people spending Christmas. Do the Directors of Imperial Airways Ltd. hang up their stockings when they go to bed on Christmas Eve? What a pretty sight it must be if they do. And think of the excitement of waking up and feeling the outlines of nuggets and gold and diamonds, and platinum-encrusted tangerines, etc.

The Air Ministry people too must get some thrills over the stocking business. They would naturally be able to indulge in their passion for secrecy to the fullest possible extent over buying things for stockings. And think of the time the technical experts would have in stressing the stockings and in turning down presents which were too heavy, or too large, to enter the orifice Presumably also a year or so would have to elapse before the recipient was allowed to say what his presents were, as they would naturally have to go on the secret list first.

And then think of Mr. Goodman Crouch stressing all the Air Ministry crackers and having to work out exactly the force necessary to break them. And imagine the poor man trying to handicap the pullers.

For instance suppose Mr. Hubert Broad were to desire to pull a cracker with the Lord Edward Grosvenor, think what a pretty little problem in handicapping it might present to Mr. Crouch. But of course once the handicapping stunt is brought into the business, then straight away you get the end of peace on earth and goodwill towards men, so perhaps we had better turn to another subject.

The Bristol Bloodhound is to come to Croydon this week. It has been fitted with a new and, according to Air Ministry requirements, highly secret engine. The name of the engine one is not allowed to mention but as everyone will be able to guess that it is a Jupiter, and as the last Jupiter before this one was the Jupiter " Mark V," the more advanced students of mathematics will not have much difficulty in guessing what it is.

However, one will certainly say this, even if one incurs the displeasure of the Air Ministry in so doing. The new Jupiter has on test shown such a huge advance over its predecessor that it has consolidated its already assured position as the " Premier British Radial engine " and has established for itself the position of the World's Premier Radial engine.

Anyway the Bloodhound is to be flown thrice daily by Lt.-Col. Minchin and Mr. F. L. Barnard, between Croydon and Bristol. This very wise move is in order to find out any little defects which may arise when the engine is run to schedule on a regular air service.

When the personnel of a certain air line approached a certain railway and asked for special facilities in the event of emergencies the railway would have nothing to do with them as the railway alleged that the air lines were serious competitors and were taking away a large proportion of their first-class passengers. This is a distinct admission and seems to show that at last the railways really fear the competition of the air lines.

It is believed at the aerodrome that Mr. Brenard's now famous prophecy of " Snow for Christmas " may really come true this year. Mr. Brenard made the prophecy in 1920, but he never said which Xmas it was to which he was referring. Personally one has the utmost faith in Mr. Brenard and one feels sure that even if we do not get snow this Xmas we shall get it for some Xmas sooner or later.

There have been certain changes among the pilots of the Air Union. M. Coste has now left to become chief test pilot to the Breguêt firm, and M. Bajac is likely to become chief pilot to the Blèriot firm. One takes this opportunity of wishing them both success in their new appointments.—G. D.

STAG LANE.

The de Havilland School is now being run in four separate classes. There is one for the regular R.A.F. Reserve officers who have previously had flying experience, one for R.A.F. Reserve class of officers who have never flown before one for Auxiliary or Territorial Air Force Officers who, like the class of Reserve officers, are learning to fly from the beginning, and there is also a civilian class. In each of these classes there are a number of pupils in various stages of efficiency.

In so far as equipment is concerned the Moth is now becoming the primary training machine and the D.H.9 fitted with the Jaguar engine is used for advanced training. The D.H. Moth has been granted a full aerobatics certificate and its popularity as a training machine is growing daily.

The transition from the Avro to the Moth is being made gradually and at the moment is about 50 per cent. complete. It is expected that by the New Year the Moth will be used exclusively for training purposes.

The D.H.9-Jaguar is now being put through its performance tests by Mr. Hubert Broad, and is doing extraordinarily well, especially considering that the aeroplane itself was designed eight years ago. It gives a top speed of 135 m.p.h., low down, with 125 m.p.h. at 10,000 feet, which height it reaches in about 8-8½ minutes.

A new oleo and rubber in compression undercarriage has been fitted and the first machine is finished with a red fuselage and bronze wings and tail unit, giving it a very smart appearance.

The de Havilland Works are very busy, as usual. One Moth has just been completed and despatched to Chile and an order for six has been received from the Australian Government. These are for use by the two newly-formed Australian Light Aeroplane Clubs, each of which are to have three machines. In addition a number of Moths are going through for use by the D.H. Flying School.

Ten D.H.50s are to be built in Czecho-Slovakia by the Aero Co. for use on the Czecho-Slovak State Air Lines. The whole ten are to be built in Prague and are to be fitted with the 240 h.p. Water-B.M.W. engine and will embody one or two modifications to suit the local conditions.

M. Vlasak, one of the two designers of the Aero Co., has been at Stag Lane for some time making arrangements for this order and at the same time familiarising himself with the constructional features of the machine.

A large batch of reconditioned D.H.9as is being passed through the works. These machines are full of Air Ministry modifications, and although they still possess the characteristic bull-nosed appearance of the 9a they differ considerably in smaller details from the original design.

The works, and in particular the drawing-office, are working hard on other designs, of which nothing may be said at the moment.

Apropos the Moth and the Light Aeroplane Clubs in general, it is interesting to observe that notes of the doings of the Clubs are published weekly in the *Motor Cycle;* and in this week's *Autocar,* a fully illustrated description of the Moth appears. This points to the growing interest in popular flying. The policy of Iliffe and Sons, Ltd., the proprietors of these two journals, is to be commended.

THE FLIGHT TOWARDS THE CAPE.

Mr. Alan J. Cobham arrived at 11.00 hrs. on Dec. 20 at Wady Halfa, having left Aswan 08.30 hrs.

In an interview with a Cairo paper Mr. Cobham is reported to have said that he was using 80 per cent. of B.P. petrol and 20 per cent. of B.P. benzol.

COMPARATIVE SPEEDS.

With reference to a recent paragraph in this paper concerning the speeds of racing machines, it has been pointed out that the speed of the Martinsyde " Semiquaver " with 300 h.p. was 153.45 m.p.hr. round the Aerial Derby Course, as a land machine with wheels, whereas the speed of the Gloster III with 700 h.p. was 199.6 m.p.hr. round the Schneider Trophy Course, with floats. Consequently the statement that the speed of the Martinsyde with wheels was very close to being the same as that of the Gloster with floats can hardly be regarded as reasonably accurate.

At the time of writing the aforesaid paragraph one had not the Semiquaver's speed figures before one, and, relying on memory, one was under the impression that it had done 188 m.p.hr. However, one gladly publishes the official figures above by way of correcting any false impression one has given.—C. G. G.

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ROYAL AERO CLUB SUBSCRIPTIONS.

A Special General Meeting of the Members of the Royal Aero Club was held at the Club premises, 3, Clifford Street, London, W.1, on Wednesday, Dec. 16.

The Chairman (Lieut.-Col. F. K. McClean) and Mr. F. Handley Page having explained the financial position both as regards the Club and its Special Racing Fund for the year 1926, resolutions authorising the increase of subscription were unanimously agreed to.

The subscriptions due on Jan. 1, 1926, are now as follows :—Ordinary members £6 6s., Service members (R.A.F., R.A.F. Reserve and Air Ministry) £3 3s..

THE ROYAL AERO CLUB'S RACING FUND.

In response to the appeal issued by the Chairman (the Duke of Sutherland), the following donations have been received to the Racing Fund of the Royal Aero Club :—Ernest Pitman, £5; Arthur E. Savill, £5 5s.; Wing Cdr. T. O'B. Hubbard, £5; Sir Mortimer Singer, £10; Lieut.-Col. F. K. McClean, £5; Lieut.-Col. M. O. Darby, £5 5s., T. O M. Sopwith, £5 5s.; Sir Sefton Brancker, £10; Oswald Short, £10; Capt. C. B. Wilson, £2 2s.; Harry Preston, £2 2s.; Air Commodore J. G. Weir, £100; A. S. Butler, £100; Lord Edward A. Grosvenor, £2 2s.; Total £267 1s.

[One would have imagined that the millionaire members of the Aero Club's Council could easily have given ten times that amount apiece without it making any appreciable difference to their bank accounts.

C. G. G.]

THE TAUTNESS OF TITANINE.

An Australian correspondent, writing to THE AEROPLANE on other matters, remarks about the flight of the Marchese di Pinedo, "When the Savoia was here the Titanine was as tight and as shining as a newly-doped plane."

Our good friends Titanine Limited ought to be pleased with this unsolicited testimonial.

PERSONAL NOTICES.

DEATH.

DUNN.—At Manston, on Dec. 16, as the result of a collision in the air, L-AC. Edward Emanuel Dunn, R.A.F.

MARRIAGES.

BETT—TOWGOOD.—On Dec. 17, at St. Mary's Church, Godmanchester, by the Ven. the Archdeacon of Huntingdon, Patrick John Bett, eldest son of Mr. and Mrs. Bett, of Woodbridge, to Ellen Geraldine, only daughter of Mr. and Mrs. Towgood, Farm Hall, Godmanchester.

GRACE—MACKAY.—On Dec. 15, at St. Andrew's Church, Frognal, Flg. Off. R. T. F. Grace, M.B., R.A.F., son of Lawrence Grace, J.P., and Mrs. Grace, New Zealand, to Lucy Andison, daughter of the late D. J. Mackay, Inverness, and Mrs. Mackay, Hampstead.

LYDFORD—SMART.—On Dec. 15, at St. Mary Abbot's, Kensington, Flt. Lt. H T. Lydford, A.F.C., R.A.F., to Isabel Broughton-Smart, niece of Miss Susan Smart, 20, Holland Street, Kensington, W.6.

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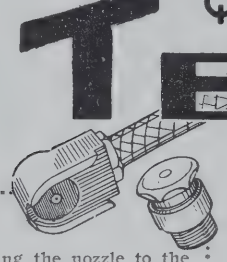
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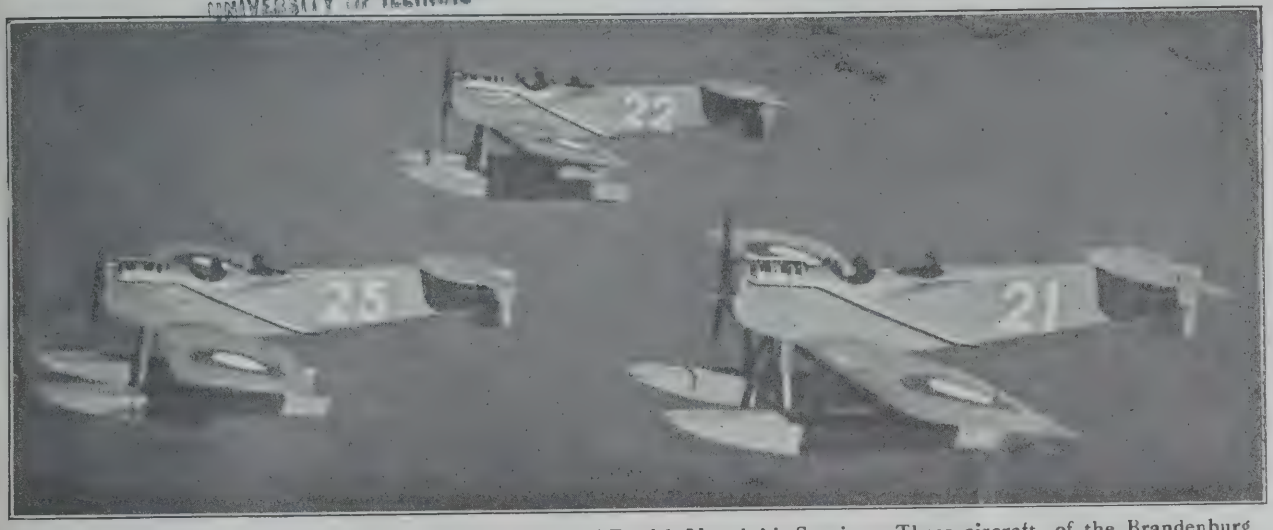
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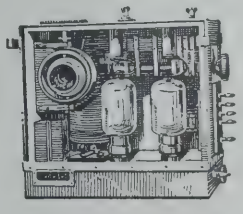
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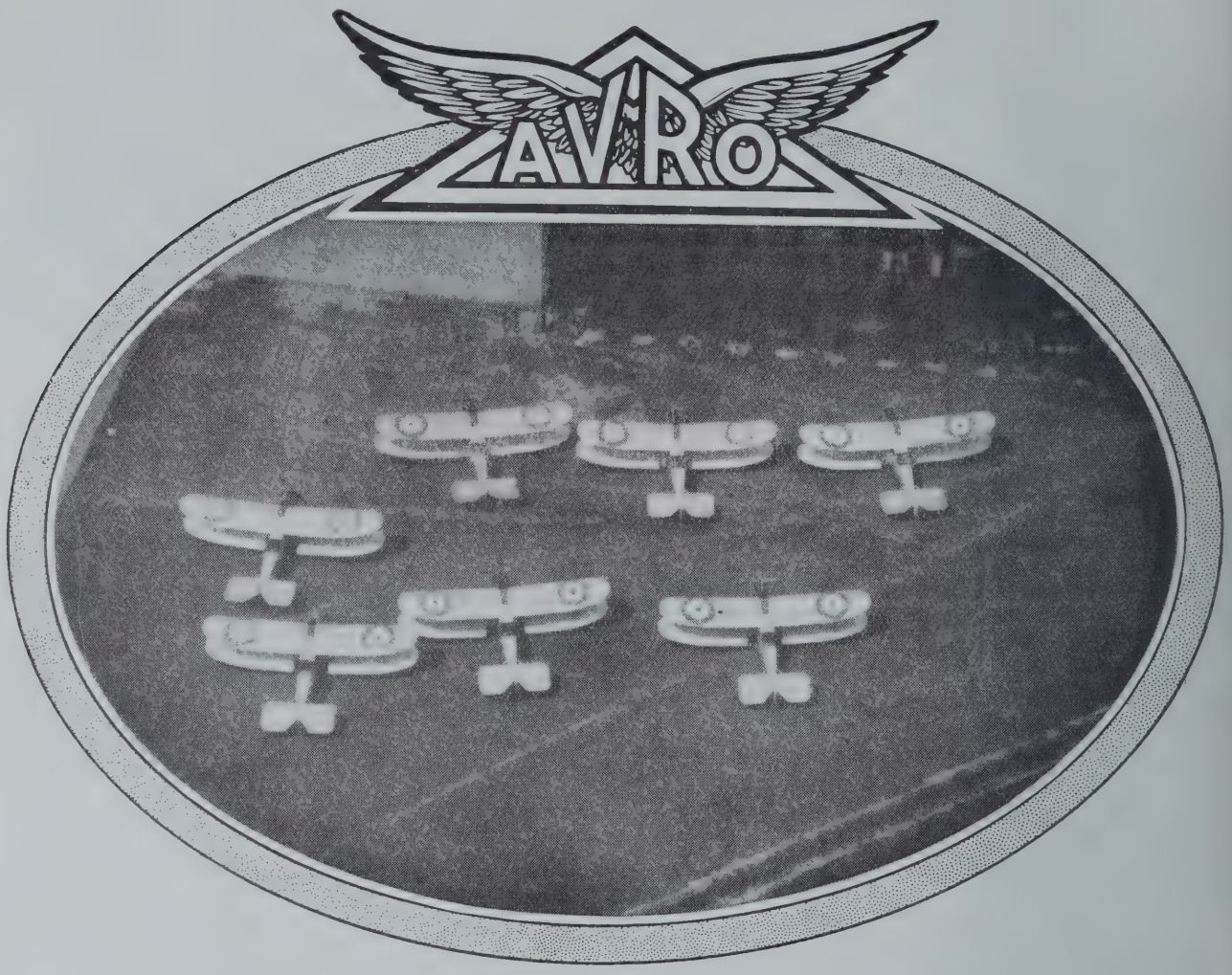


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VOL. XXIX. No. 27.

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ON THOSE AIR RECORDS.

(A Pure Fiction.)

Things had been rather worrying in the office that day. The morning's mail had brought letters of the most trying sort. Half-a-dozen people had written asking strings of questions about joining the R.A.F., when they should have asked them from the Secretary of the Air Ministry, and, for the sake of THE AEROPLANE'S reputation one had to answer them all in detail. A distressed mother had wanted to know how her little Willie, who had been posted to Iraq, could have his departure postponed till after her birthday. A director of a manufacturing firm had written complaining that although many pages of the previous week's issue had been devoted to explaining what a fine affair his firm was, and how much the Empire owed to it, one had omitted to mention that he was on the board.

The great chief Bellowing Papoose, Head Modock of the Indian Territory Chapter of the National Aviators' Association of America had called with an introduction from a valued friend in the States to investigate the organisation and accomplishments of our Air League, and for the love which one bears to one's many friends in America one had to explain to him at length that there was nothing much about the Air League which could be copied with advantage in Indian Territory, or elsewhere. An aircraft designer, of world-wide repute, had asked one to discover whether anybody in England would like him to help them to build a Schneider Trophy winner for the next contest, and on every side the answer had been "Nothing to-day, thank you. The Air Ministry hasn't made up its mind whether to compete against the American Air Services or not." And of course none of the Royal Aero Club's millionaire patrons would put up the necessary five or six thousand pounds for a machine.

The Secretarial Department (feminine) of THE AEROPLANE had declared war on the Technical Department (masculine) because the mere men had objected to Christmas decorations in their office on the grounds that they harboured dust, whereupon the Secretariat had retorted that a whole forest of holly wouldn't collect as much dust as the disordered mass of useless documents on the Technical Editor's table, and that anyhow the holly had some point in it. So one had to turn one's own office into a kind of Locarno until a Peace Protocol could be produced.

An ex-R.A.F. aviator had called in the hope of instigating a campaign in THE AEROPLANE against the Air Ministry because, although he had crashed sixteen aeroplanes without killing himself during the late lamented War, he was not allowed to fly a Moth belonging to a Light Aeroplane Club. So one had to explain that in these days Moths were much more valuable than the biggest fighting machines were during the War and that his best course would be to go and talk to the Director of Civil Aviation, who would doubtless explain his own self-denial in not flying Moths.

So, after dictating about thirty letters to one's overworked Secretary, and after answering as many telephone calls, one decided to have a quiet half-hour to one's-self in which to study a paper by one of our leading aerodynamic scientists on "The Influence of the Integral Calculus on the Burble-point of Bristol Fighters," or something of equal importance.

The document must have been unusually heavy, even for the literary style of a scientist, for one dozed off into a gentle sleep from which one was seemingly awakened by the sudden incursion of Geoffrey, otherwise known as "G.D.," who announced with his most beatific smile,—"They've got it!" "Got what?" one asked, only half awake. "They've got the Air Force Fox-Trot at last. The Air Ministry have just



AN EARLY RECORD BREAKER.—A Sopwith "Schneider" seaplane of 1914 which until quite late in the War was about our best single-seat seaplane. It is a replica of the machine which first won the Schneider Trophy for this country in 1914. It is here seen on the beach at Kingston-on-Thames.

sent up the words and music and a sample gramophone record, with the official intimation that it is now released from the Secret list."

The Story of The Official Air.

Then one remembered all about it, though in truth the production of the Official Air had begun so long before that its style was as out of date as the design of the lastest R.A.F. aeroplanes as issued to squadrons. Allowing for lapses of memory, the story was something like this :—

The Royal Air Force, being the most up-to-date of Service had come to the conclusion that it was not content with its Official March, composed of a medley of airs in the Scottish mode, but that it would have an Official Fox-trot which should be performed at all R.A.F. social gatherings. The demand began among the Squadrons, and the wives of the Squadrons, it passed up through Wing Headquarters and Group Headquarters to Area Headquarters, where, from being mere chatter among flying-officers and flight-lieutenants it became a subject of serious debate among the more active Air-Commodores and Air Vice-Marshals.

And so it came to the Air Ministry itself, where further progress stuck fast while the Great Ones decided whether it was a matter for the Personnel Department or the Supply and Equipment Branches. Finally, after a lot of argument the Great Ones decided that if the thing was to be done at all it should be done properly, and that words and music should be printed and gramophone records made, and that these should be made a service issue to all R.A.F. units. Which, of course, meant that the business would have to be handled by the Supply Department. And that naturally involved all the Technical Departments, including Research. Which is where the fly began to get into the amber, or rather where the grit got into the records.

The first thing to do was, obviously, to find the general arrangement of the air for the fox-trot, and the next thing was to get it properly constructed for experimental use in a test orchestra, and the last thing was a production order for printed copies and records. It all worked out quite nicely along the lines to which the Air Ministry officials had been accustomed in procuring aircraft. Like furnishing on the hire-purchase principle; it seemed so simple.

The Air Records Department.

A new department, "Air Records," was organised, with an Air-Commodore who was a persistent rather than an accomplished dancer in command. To him were gathered the necessary complement of dancing junior officers, as staff. And to them was committed the task of producing the Official Fox-trot, and of battling with the various Technical Departments.

Of course arguments began at once. The Air Officer Commanding Air Records (abbreviated in official minutes to A.O.C.A.R.) wanted something rather gentle and smooth, rather like "Rose Marie," he said. A young Squadron-Leader, who fancied himself at the Charleston, wanted an air with an epileptic kick to it, something on the lines of "*I'm*/a little bit/fonder of you/than of myself/, I *am*." A very junior Flying Officer, whose ideas were more earthy and less up-to-date, agitated for a real ragtime tune such as, "Who'll take care of the Caretaker's Daughter when the Care-taker's busy taking Care?", or "Horsey Keep Your Tail Up" (as being appropriate to aeroplanes), or "Yes! We have no Bananas" (as indicating the lack of equipment in the R.A.F.).

So, after much argument, they decided to appeal to the Society of British Air Composers, the recognised association of British music constructors, to see what could be done about it by acknowledged experts. And that was where their troubles really began.

The British Air.

The Society, which is always known in musical circles, both high and low brow, as the S.B.A.C., held up its collective hands in horror at the mere idea of being asked, either as a body or as individuals, to work along modes which had originated in America. They informed the A.O.C.A.R. that British melodic lines had been proved the best in the World, and that though American airs might be lighter and faster they had not the solidity of construction nor the durability of the British article. They pointed to the ever-present popularity of "Pop Goes the Weasel" and "Cherry Ripe" and "Jerusalem" and asked whether anybody could point to an American fox-trot which fifty years hence would be as popular as the British airs still were. The young Squadron Leader's question, "Who the blazes wants them to be?" was passed over in dignified silence.

Recognising the inherent truth of the S.B.A.C.'s argument, the Department of Air Records proceeded to issue to the Society's members a complete specification of the desired Fox-trot. It must run just so many beats to the minute. It must not run beyond $3\frac{1}{2}$ minutes at that number of beats per minute. And it must not be too much syncopated. These were the data laid down by the A.O.C.R., who was not overquick on his controls and had no great duration capacity, and who had a sense of time but none of rhythm. Its ceiling, otherwise its top note, was placed at "E in alt" by a musical officer who had once sung in a choir. And a Wing-Commander who had an elegant figure specified that it must land slowly with a long-drawn last note which would suit his favourite pose.

Supply and Demand.

The S.B.A.C., as a Society, accepted the specification with every protestation of good will and promised that its members would deliver working outlines of airs at an early date. But individual members, who had met some of the staff of the A.O.C.A.R. at night-clubs and places where they dance, went privily to their friends in the Department to try and get the specification altered in detail to suit their own capacity and even offered to embody American rhythms in their lines. One had a capital air which would be spoiled by dragging it up to the high E. Another could do a good tune, but to be effective it had to end with a bang instead of a sentimental wail. Yet another insisted that the speed should be higher even though the duration need be no longer.

Meantime the Supply Department had not been neglecting its duty. Contractors were asked to submit samples of paper, printers' ink, vulcanite for records, and steel for needles. And samples having been acquired, the Air Inspection Department appointed special A.I.D. officials to test the airworthiness of these materials. They say that several learned Herr Doktors in the employ of Sheffield steel manufacturers went mad and committed suicide in their own crucibles before a needle which could pass the A.I.D. was produced.

Official Delays.

Of course all this took a good deal of time, and after a while an attempt was made in what are called "dancing circles"—though one believes that most floors are oblong—to introduce the tango. Whereupon the Department of Air Records, being like other Departments up-to-date in its ideas, albeit not progressive in its production orders, decided that in order to maintain its position as the First Line the R.A.F. ought to have a tango air instead of a fox-trot. So the S.B.A.C. was notified accordingly, and a new specification was



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issued, which included the demand for a passage in the air to be produced by beating with a mallet upon a wood-saw.

The result was a special extra-ordinary meeting of the S.B.A.C., a deputation to the A.O.C.A.R., half-a-dozen questions in the House of Commons, and an article in *The Morning Post* on "Lack of Harmony in the Air Ministry." Also it caused another panic in the steel industry owing to the A.I.D.'s demand for samples of air-worthy saws. A few British Air Composers went out of the business and turned to making an honest living. But the A.O.C.A.R. stuck to his guns, or rather his tango. And the tamer members of the S.B.A.C. set about trying to give him what he wanted.

After that came another delay, during which the dance-halls of Great Britain decided that the exotic tango did not suit the British Constitution and that the Waltz, being essentially English (having been imported from Germany early in the 19th Century), should be the only thing "as done." So the Department of Air Records cancelled the tango specification and issued a new waltz specification, and the A.O.C.A.R. went and took a series of lessons from Josephine Bradley.

The rest of his Department contented themselves with getting the knack of doing fox-trot steps to waltz time. And the Wing-Commander was most pleased because the dreamy rhythm suited his elegant figure.

But in the meantime, through all these years, the personnel of the R.A.F., officers and airmen and their female accomplices alike, yearned for a real good fox-trot, something dreamy, but with a kick in it. And some of the members of the S.B.A.C., who were really in touch with the R.A.F., knew what was wanted and determined to get it.

INDIVIDUAL ENTERPRISE.

One composer in particular, who had an ear for music, heard George Gershwin's "Rhapsody in Blue" with full bass effects for the first time on one of the newest "Master's Voice" gramophones and suddenly awakened to the fact that there was real music of genuine worth in America. So off he went to the States and entered into an agreement with a highly-successful American composer to pool their brain-waves and make money, while at the same time improving the quality of music on both sides of the Atlantic.

Forgetting, or ignoring, how our motor-cars and our tube railways and our hotels and other amenities of life, have been improved by importing and embodying and perfecting American notions in England, British Air Composers poured obloquy on the devoted heads of their "black-leg" brother. And *The Air Player*, the leading musical journal, actually had a large advertising contract terminated because it dared to suggest that a little Americanisation might improve the breed of English music, much as the English thoroughbred had been produced by importing Turkoman horses.

Then more trouble arose because the Department of Air Records, just to keep the junior ranks quiet while the long-promised standardised air was being produced, went and ordered a single batch of music and records of a particularly fast and agile air composed on distinctly American lines by the aforesaid enterprising composer. And it issued them to the Squadrons.

It was a distinctly good tune, and the composer said that he got his effects by obeying the basic laws of Nature instead of trying to conquer them. He had gone back to the primitive and discarded complication, working on the lines of "The Fairy Reel," a traditional air, whose origin, as any musician will tell you, is lost in a mist of legends. Personally one has known it for forty years as a jig-tune.

He produced the records and everything himself, without reference to the official specifications and he used some American material. But he was careful to have his workmanship passed by the A.I.D. So the unregenerate youth of the R.A.F. took the new tune to its collective bosom and called it the "Fairy Fox-Trot."

And when the other composers heard it they wondered why they had not thought of the same idea—which is what always happens with simple inventions, like safety-pins and pneumatic tyres and such-like.

After that things really began to move. Competition being good for trade, everybody began competing in speed and performance and the Department of Air Records was flooded with brilliant ideas, many of them sent in by young and unknown composers, who were clever enough to understand that the official specifications were only intended as a guide and not as hard and fast rules.

The big manufacturers of music and records realised at last that many of the designers of airs whom they had employed to produce war-time marching airs were becoming



THE REAL AIR ESTABLISHMENT.—While a test pilot of the Dancing Staff (T. Dept.: Terpsichore or Thé) watches the air-designer's test pianist at work, a high-browed scientist of the permanent civil staff of the R.A.E. checks the time which is taken by the tester in emitting the foot-pounds of vibrations necessary to produce sufficient British Thermal Units to boil a kettle of x cubic centimetres capacity.


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hide-bound, or were suffering from cerebro-sclerosis, so they pensioned them off or put them onto simple jobs such as writing airs for music-halls. And they engaged bright young brains with fresh notions. One of them even dug out a war-time composer who had designed one of the handiest things of the later war period, and he proceeded to beat most of the new-comers.

DARKNESS AND COMPOSURE.

Then, naturally, the Department of Air Records struck another snag. These new airs, being for official use, had to be kept secret till they could be standardised and ordered and put into mass production. So the Secrecy Department, otherwise known as the Department of Darkness and Composure, placed its ban on the lot. All sorts of good tunes, which might have found popularity at home and abroad, were put under the official ban, pending official approval or disapproval.

And *The Air Player* got into terrible trouble through publishing outlines of some of the more promising types. In fact R.A.F. dancing people and members of the S.B.A.C. were solemnly warned against being seen speaking to any of the staff of the paper. Things were nearly as bad as when, during the War 1914-18, the War Office, which then controlled Aviation and everything else, set a spy to live opposite the Editor's flat and observe who went in and out—oblivious of the fact that the said Editor did most of his plotting in the middle of Piccadilly, between the two lines of traffic, where is in fact the least frequented piece of ground in London.

Of course everybody in the musical community knew all about the new airs. And all the embassies and legations sent copies home before the Air Ministry and its Secrecy Department had seen the originals. But then the Secrecy people had to justify their existence, poor things, even though their policy meant depriving the R.A.F. in bulk of a great deal of interest and pleasure, and prevented the British Air Composers from earning abroad the reputation they deserved.

THE GREAT DISCLOSURE.

However, in our usual stupidly honest English way we kept on keeping on, and finally, after years of waiting, those of us who were behind the scenes learned that at long last the A.O.C.A.R. had got hold of a really truly first-class air and had put it into production. We could have published the words and music months before, but for the respect we had for the senior people in the Air Ministry and our desire not to offend them. Our self-imposed silence was the more difficult when we found the ideas of our own Composers being copied in turn in America, and by Viennese and Czecho-Slovak Waltz-Kings and so forth.

We did our best to hustle things. The Musico-Technical Editor of *The Air Player* wrote scathing articles on the A.O.C.A.R. and his Department, full of abstruse calculations in acoustics and wave-lengths and rhythmic impulses. And he compiled curves of energy units exerted per fox-trot unit by couples of various heights, girths, weights, leg-lengths and so forth. And the paper's untamed artist drew brilliant pictures of what dance-couples would look like if they were allowed to use the tunes which the paper dared not publish. And the sporting editor, who was naturally a woman, wrote a scathing article on R.A.F. dancing alleging that it was as rough as a rugger match and as bad form as Soccer.

But the Government's faithful servants pursued their solemn way, working in their own slow effective fashion to get that ideal air which could be standardised for all eternity as the R.A.F.'s very own.

And now, at last, came Geoffrey, bursting with enthusiasm as usual, to let loose the official secret. This time we really would let ourselves go. We would devote the whole of the next issue to describing this ultimate wonderful united product of the S.B.A.C. and the Air Ministry. We would let Leonard Bridgman have four pages to illustrate what could be done with it. "C. M. McA." should have six pages in which to review all the new musical publications in terms of Rugger and the Air Service Pocket Book. We would let W. H. Sayers have eight pages in which to publish all his diagrams and formulæ. And "G. D." should have ten pages in which to lampoon and libel all the British Air Composers regardless of consequences. For oneself one would have sixteen pages in which to discourse on its racial origin and its influences on the next war. This would the finest issue in the fifteen years of THE AEROPLANE'S existence.

* * * *

And then, as one returned to complete consciousness, one heard a gramophone in a shop in the arcade below the office informing the World, "If you knew Susie as I know Susie," and one wondered what would happen if everybody knew the lurid inside history of British Aviation as some of us know it.

What Geoffrey was really saying was, "The new Lucifer VI is still on the Secret List, and Cobham is still on the way to the Cape, and I *wish* you would decide on a headline for next week's frontispiece!" And so one entered upon the work of yet another New Year.—C. G. G.

SIR VYELL VYVYAN'S APPOINTMENT.

The Air Ministry announces :—

The Secretary of State for Air has appointed Air Vice-Marshal Sir Vyell Vyvyan, K.C.B., D.S.O. (retired list of the Royal Air Force) to be one of the Government Directors on the Board of Imperial Airways Limited, in place of Major J. W. Hills, M.P., who has resigned that appointment.

No appointment could be more satisfactory. Sir Vyell has proved himself to be an excellent organiser and commander of men. He has displayed notable foresight on numerous occasions. And he has the faculty of acquiring the esteem and respect of all who have dealings with him. Few men have as good an understanding of the proper uses of aircraft over land and sea. And he has a wide knowledge of the World. His appointment is a happy augury for the future of Imperial Airways.—C. G. G.

HENDON FOR THE R.A.F.

The Times of Dec. 29 states :—

The negotiations which have been proceeding over a long period for the acquisition by the Government of Hendon aerodrome have, it is understood, now reached the point where a deposit has been paid, with the expectation of the formal completion of the contract early in the New Year.

Some months ago an official statement indicated that the Hendon Aerodrome, known to its original proprietors as "The London Aerodrome," was to be taken over by the R.A.F. as a Home Defence station, but negotiations seem to have been somewhat protracted as between the Government and the liquidator, manager, or what-not of the Grahame-White Aviation Co. Ltd. which formerly owned the ground. A recent rumour said that Mr. Claude Grahame-White had personally acquired possession of the land from his old firm and was selling it to the Air Ministry.

In any case one is glad to hear that the R.A.F. is taking possession and that London's classic home of flying will again be put to its proper use. One hopes that arrangements will be made to allow the British Public to watch the flying there at close quarters, as at most R.A.F. aerodromes.

Hendon first came into notice as a flying ground when M. Louis Paulhan, invited by Mr. Holt Thomas, started thence on April 27, 1910, to win *The Daily Mail's* £10,000 prize for the first flight from London to Manchester. At that time the aerodrome consisted of one fair-sized field in which was a shed sheltering an experimental aeroplane built, and flown in long hops, by Messrs. Everett and Kenelm Edgcumb.

Thereafter Mr. Claude Grahame-White obtained the financial assistance necessary to acquire possession of the land surrounding this field. He had the good fortune to acquire at the same time one Richard T. Gates as partner and manager, and to him was gathered one Bernard Isaac in charge of publicity.

Richard Gates was one of the great characters of aviation. He had the showman's sense in a degree possessed by such men as the late Phineas Barnum and the present Charles Cochran. At the same time he was a thorough sportsman, one of the kindest of men personally, and as straight as ever a man was. At any time and on any subject one would have taken Richard Gates' word against any other man's signature or oath.

He was ably seconded by Bernard Isaac, who has (he is still very much alive) a remarkable talent for publicity and for "working the press," as the saying goes.

Between the two Hendon became a popular resort. One saw the best flying in the World there, and the World's best aviators. The Saturday races and the Sunday exhibitions became so popular that a crowd of 10,000 people was the usual thing. And the classic events, such as the Aerial Derby and the Paris-and-Back Race, brought crowds of 50,000 to 60,000.

Richard Gates, who joined the R.N.A.S. at the outbreak of War in 1914, though he would have been most valuable as a constructor of aircraft, was killed while flying on an anti-Zeppelin patrol at night early in the War. If he had lived Hendon might be to-day even greater as a centre of public interest in flying than it was before the War.

On the outbreak of War, the aerodrome was taken over by the Admiralty as a training station for the Royal Naval Air Service. It was commanded by the late John Porte, the pioneer of British flying boats, whose prosecution on an entirely baseless charge later in the War remains to-day one of the most scandalous episodes in English law.

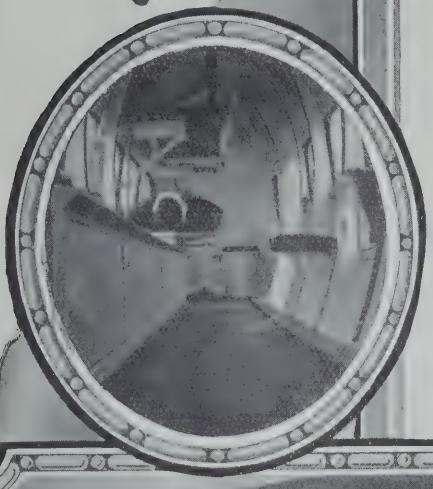
Later Hendon was taken over by the R.F.C. and the Grahame-White School and others attempted to operate there.

After the War some attempt was made to revive the place as a popular resort, but without success. The one man who might have made it successful by carrying on the Gates tradition—Bernard Isaac—was not called upon to assist.

At intervals it has been hired by the R.A.F. for its Pageants, and by the Royal Aero Club for Aerial Derby races and one or two other shows. Of late it has been the home of Major Jack Savage's Sky-Writers, and a few stray privately-owned machines.

The revival of Hendon as an aerodrome fully in being is to be welcomed. And one wishes its occupants success worthy of the traditions of the aerodrome in its great days.—C. G. G.

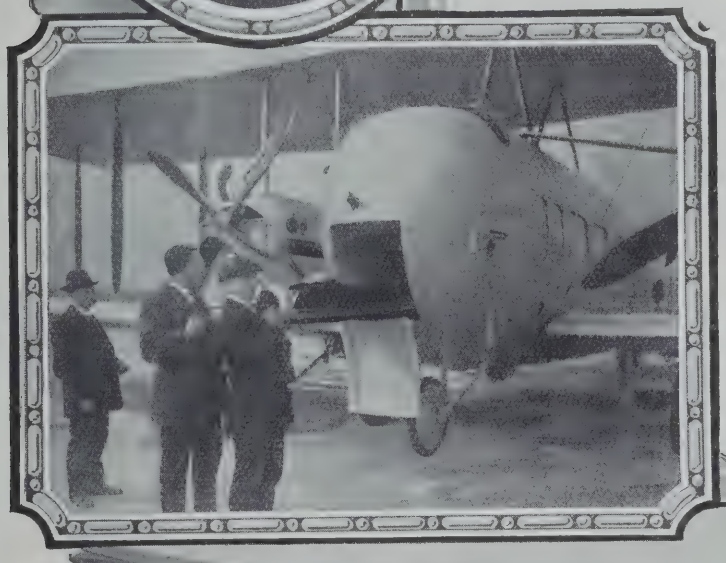
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THE ROYAL AIR FORCE.

The London Gazette

Dec. 22.

General Duties Branch.—The following Plt. Offs. are promoted to the rank of Flg. Off.:—F. H. S. David, M. W. Goldie, H. M. G. Parker (Nov. 15); C. Feather, H. S. Martin (Dec. 15).

Flg. Off. J. C. Hill relinquishes his S.S. comn. on account of ill-health (Dec. 23).

Plt. Off. G. A. Whitehead is dismissed the service by sentence of General Court Martial (Dec. 10).

Stores Branch.—Sq. Ldr. C. Mason is placed on the retired list (Dec. 20).

Medical Branch.—Flt. Lt. G. Kinneir is transferred to the Reserve, Class D.2 (Dec. 19).

Reserve of Air Force Officers.—H. R. Raikes, A.F.C., is granted a comn. in Class B, General Duties Branch, as a Sq. Ldr. (Oct. 11); R. A. Kendrick is granted a comn. in Class AA, General Duties Branch, as a Plt. Off. on probation (Dec. 7); P. A. Carrie, M.B., Ch.B., is granted a comn. in Class DD as a Flg. Off. (Dec. 22).

The following are confirmed in rank:—Flg. Off. A. T. Daw (Nov. 7); Plt. Off. C. H. E. Coles (Dec. 16).

The following are transferred from Class A to Class C:—Flt. Lt. B. A. Trechmann (Dec. 19); Flg. Off. K. W. Brewster, M.C. (Dec. 20).

Appointments.

Week ending Dec. 29.

General Duties Branch.—Squadron Leader T. V. Lister, to H.Q., India, 15/12.

Flight Lieutenants C. L. King, M.C., D.F.C., to Station Commandant, Hinaidi, 15/12. W. E. Reason, to Cairo-Cape Flight, 3/12. P. S. Jackson-Taylor, to R.A.F. Depot, 18/12. R. Jope-Slade, D.S.C., to No. 24 Sqdn., Kenley, 21/12. W. T. S. Williams, D.S.C., to School of T.T. (Men), Manston, 30/12.

Flying Officers A. F. Scroggs, to Electrical and Wireless School, Flowerdown, 1/1. C. F. H. Grace, to No. 5 F.T.S., Sealand, 16/12. C. Walter, to No. 19 Sqdn., Duxford, 16/12. F. F. Wilkinson, to C.F.S., Upavon, 16/12. G. A. F. Bucknall and C. V. Lock, to No. 1 Sqdn., Iraq, 15/12. R. Duncanson, to No. 208 Sqdn., Egypt, 28/11. (Hon. Flt. Lt.) R. F. Carter, to H.Q., Inland Area, 2/11. A. L. R. Duke, to No. 30 Sqdn., Iraq, 15/12. A. W. Rowbotham, to No. 84 Sqdn., Iraq, 15/12.

Pilot Officers A. L. Ottway and D. A. Boyle, to No. 1 Sqdn., Iraq, 15/12. W. T. Holmes and P. H. Nicholls, to Aircraft Depot, India, 15/12. R. E. Costa, to No. 7 Sqdn., Bircham Newton, on appointment to a perm. comn. from Cadet College, 29/10. C. J. Pavia, to No. 5 F.T.S., Sealand, 2/1.

Medical Branch.—Squadron Leaders P. T. Rutherford, O.B.E., to H.Q., Iraq, 28/11. T. J. Kelly, M.C., M.B., B.A., to No. 6 Group H.Q., Kenley, 30/12.

Flight Lieutenants (Dental) D. H. W. Williamson, to H.Q., Cranwell, 7/1. A. Williams, to Station H.Q., Northolt, 5/1.

Flying Officers E. A. Aslett, to R.A.F. Hospital, Halton, 28/12. H. M. Levy, to R.A.F. Depot, 28/12.

Stores Branch.—Flying Officer C. T. Davis, to No. 56 Sqdn., Biggin Hill, on transfer to Home Estab., 31/12.

Accountant Branch.—Flying Officer C. W. Cackett, to R.A.F. British Hospital, Iraq, 15/12.

Cranwell Cadetships.

The following are declared by the Civil Service Commissioners to be the successful candidates at the competition held in November for admission to the Royal Air Force Cadet College, Cranwell. The names are in order of merit.

E. A. Jones, R. S. Beddall, K. F. T. Pickles, C. C. A. Bayley, D. J. Waghorn, J. S. Dewar, R. A. T. Willis, J. F. H. Sorby, E. A. O'S. Vaughan, H. H. Leech, H. C. Parker, J. H. L. Dillon-Trenchard, N. B. Norris, C. E. St. J. Beamish, R. O. W. M. Davis, N. E. White, K. R. Brooke, W. H. Hutton, S. L. Blunt, P. J. B. Chalmers, F. J. Stevens, J. S. Carter.

A Fatal Accident.

The Air Ministry regrets to announce that as a result of an accident near Nefisha, Egypt, to a D.H.9a of No. 4 F.T.S., Abu Sueir, at 5.30 a.m., on Dec. 23, Plt. Off. Cecil William Woodbyrne, the pilot of the aircraft, and No. 328867 AC.1. Arthur Thomas Groom, were seriously injured. Plt. Off. Woodbyrne died later in the day.

Air Defence.

The Morning Post of Dec. 17 states:—

It is understood that Berechurch Hall, the purchase of which by the War Office was recently announced by the *Morning Post*, is to be used as an out-station for the air defence of London, and that this step has been made in conjunction with the Air Force, which recently bought Bentley Priory, near Stanmore, for a similar purpose.

Berechurch Hall is near Colchester. Presumably it will be H.Q. Anti-Aircraft gunners in that area.

The R.A.F. in India.

The Daily Telegraph correspondent in Delhi, in a communication dated Dec. 26, states:—

Attention is called in high quarters here to statements appearing in the English papers just received by mail indicating misapprehension in regard to the condition and efficiency of the Royal Air Force in India. The allegations were that General Sir Claude Jacobs' despatch on the air operations against the Mahsuds in Waziristan last spring confirmed rumours then current that the Air Force was short of equipment by twenty-seven aeroplanes and forty engines and of experienced pilots; that Sir E. Ellington, commanding the R.A.F. in India, had censured the Government of India's delay in sanctioning some scheme the non-fruition of which hampered operations in Waziristan; and that probably in anticipation of the censure implied in several passages in Sir E. Ellington's Waziristan despatch, the Government of India had recently given unexampled attention to improving the personnel and equipment of the Air Force.

An official démenti issued with Sir E. Ellington's approval shows that these statements reflect a considerable misunderstanding. Sir E. Ellington's observations regarding the shortage in the Air Force did not refer to machines in use but to reserves. The efficiency of the machines with the squadrons operating in Waziristan, each of which had a full quota of aeroplanes, is shown by the fact that only one serious accident occurred, and that was attributed to enemy fire.

The deficiencies in reserves were a legacy of the shortage of equipment existing in 1922-23. It is only recently that data has been available to calculate the amount of reserves required to maintain the present full scale of flying. Once the data was known the necessary funds were provided, and the temporary shortage referred to by Sir E. Ellington was due to the fact that several months must elapse before the stores which have been procured from the United Kingdom reach India. The position regarding reserves has steadily improved since the conclusion of the operations in March-May last, and is now satisfactory. Meanwhile the efficiency of the squadrons has not suffered, as is shown by the performance of the R.A.F. in the recent Northern Command manœuvres, when the squadrons averaged 100 hours' flying each in three days without any case of machine failure.

The reference to the full scale of flying concerns the considerable increase in the scale ordered by Sir E. Ellington since he assumed command in India.

The R.A.F. Rugby Cup.

R.A.F., Andover v. 58 "B" Squadron, Worthydown.—Played at Worthydown on Dec. 19, 1925, resulting in a win for Worthydown—13 points (two goals and a try) to nil.

Andover settled down quicker than the home team, but good work by the Squadron backs gave Plt. Off. Brookes the ball and the movement was only frustrated by the stout tackling of the Andover back. Shortly before half-time Flg. Off. Albert picked up in the loose and went over between the posts from somewhere in the region of the half-way line, AC.1. Bury converting.

The second half opened with a strong attack by Andover, but AC.1. Bury eased the pressure with a clever run, and shortly afterwards Plt. Off. Brookes forced his way over the line close to the corner. Just before the final whistle Flg. Off. Davis, due to some fine passing, was able to cut through with a good run and AC.1. Bury again converted.—"C."

THE FLIGHT TO IRELAND.

So many fine flights have been accomplished on the De Havilland Moth that nowadays on hearing that such a flight is to begin one merely awaits its conclusion without expecting any incident.

On Wednesday last Colonel the Master of Sempill left Stag Lane at 10.00 hrs. for Dublin on a Moth. He carried with him four tins of petrol. He alighted at Shotwick and refuelled and then flew to Holyhead. Here he landed in a field and refuelled from the tins he carried. He then flew straight across Lt. Col. Robert Loraine's private airway to Dublin, which is a 60-mile sea crossing. He encountered two heavy hailstorms, in spite of which he made landfall at Kingstown and landed at Baldonnel after 4 hrs. 45 mins.' flying.

Here Col. Russell, the C.-in-C. of the Free State Air Force, and three of his officers flew the machine and expressed great satisfaction with it.

The Master of Sempill then picked up Sir Sefton Brancker and flew to Belfast. He is making the return flight this week.

The Master of Sempill's fine navigation and his confidence in the Moth and the A.D.C. Cirrus engine in flying in bad weather across 60 miles of sea are particularly notable. All parties concerned deserve congratulations for a very fine flight.

OUR LATEST AIR POLICY.

Speaking at a meeting of the Conservative and Unionist Association at Chelsea Town Hall on Dec. 16, Sir Samuel Hoare, the Secretary of State for Air, said:—

"We are in the fortunate position of being able to consider our expenditure upon defence in a calm atmosphere. The signing of the Treaty of Locarno has in the minds of many people changed the whole course of European politics and turned the thoughts of Governments from the threatenings of war to the pursuits of peace. It is early days to say how completely the hopes of Locarno will be realised. It is not too early to say that the sky is much clearer and that the rays of peace are becoming warmer and brighter. In these conditions it is wise and necessary for every country to consider carefully the large sums of money that are being spent upon armaments.

"Ever since I returned to office I have been with my advisers reviewing the position so far as it affects the Air Force and air defence. The problem has been by no means easy. On the one hand there is the undeniable fact that, judged by the standards of all the other great Powers, our air defence has been from the point of view of quantity most inadequate.

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Although the introduction of air power has made this country liable to the most terrible form of attack, our air force, when I first took office in an inferiority of one to ten, is still in an inferiority of one to three as compared with the nearest air force upon the Continent.

"You will remember that it was to remedy our great inferiority in this respect that two and a-half years ago we initiated our programme for building up a force for home defence, and that since that time we have been stage by stage strengthening our defences to this end. During the last few months we have once again considered the position in the light firstly of the peaceful atmosphere generated by the Treaty of Locarno, and secondly of the need for financial economy. After the most careful investigation we have come to the conclusion that however urgent may be the need for reducing expenditure, we must take no dangerous risks with the vital defences of the country, and that, therefore, the programme of expansion must, as things are, remain intact.

"We shall, therefore, continue to complete stage by stage our Home Defence Force of 52 squadrons. Whilst, however, our programme remains intact, my advisers and I have been able to find in various directions opportunities for saving money and postponing heavy expenditure. In the normal course of things the air estimates would rise next year by some 30 per cent. as an automatic result of the policy of expansion that has been approved by successive Governments and sanctioned by the House of Commons. This heavy rise, which would have brought the Air Estimates to a sum well over twenty millions as compared with the sixteen millions of this year, would have been most unfortunate at a time when the whole world is thinking of peace and when every British taxpayer is clamouring for a reduction of Government expenditure. The rise would have in no way been due to Air Ministry extravagance. Inquiry after inquiry has come to the same conclusion that the Air Ministry has carried out its difficult task economically and efficiently. It would would have been due to the sole fact that you cannot treble the strength of one of the fighting services without incurring cost and that next year would have been a peak year in our expenditure owing to the capital expenditure for new stations being incomplete and the maintenance expenditure for half the new squadrons being already started

"I am giving away no secrets when I say that I have been able to recommend to the Government a postponement of certain items of expenditure that will avoid anything like this rise. I believe that I am justified in making these economies and in postponing this expenditure owing to the changed situation in Europe. I must none the less emphasise the fact that our Air policy and our expenditure upon air defence must always be governed by the conditions in other countries and that any postponement of our programme must depend on the attitude of other governments. No great country can run risks with its defence even in a period of peace. Certainly the British Empire and Great Britain cannot run such risks. But as things are we are prepared, as we always have been prepared, to show in a practical way the sincerity of our belief in the need for restriction of expenditure upon armaments.

"Although our inferiority in air force as compared with that of other Powers is still notorious, and although air attack is the most dangerous form of attack to which these shores are liable, as a result of the Treaty of Locarno we are prepared to spread to some extent our programme of air defence. Let other countries follow our example, and make it possible for us to carry out this postponement and for all governments to avoid in the years to come a race of armaments that will be far more disastrous than any that we have endured in the past."

AN EAST AFRICAN AIR SERVICE.

According to *The Times* on Dec. 18 Capt. T. A. Gladstone, A.F.C., a director of the Blackburn Aeroplane and Motor Co., Ltd., who has recently returned from Egypt and East Africa, where he has been surveying the possibilities of an air service connecting Egypt with Uganda and Kenya Colony, addressed a special joint meeting of the East and South African sections of the London Chamber of Commerce on the possibilities of such an air route.

Sir H. Leggett, chairman of the East African Section, presided, and Col. I. A. E. Edwards, Deputy-Director of Civil Aviation at the Air Ministry, was present.

Captain Gladstone, in outlining the scheme, said that it was proposed that the service should run once a week in each direction from Khartum to Lake Victoria Nyanza. The saving of time on the total trip between London and East Africa, using train and steamer to Khartum, and thence by air, would be eight days. It was hoped eventually to extend north from Khartum to Cairo, joining up with the Imperial Airways aeroplane service from England to India or the Imperial Airship service. When that was accomplished East Africa would be reached in six days. The loads which the machines would be able to carry would be eight passengers, with luggage up to about 50 lbs. per passenger, and 500 lb. weight in mails and goods. The proposed route would follow the Nile from Khartum, passing Malakal, Shambe, Mongalla, Rejaf, Lake Albert, Massindi, Jinja, and Kisumu, the present termini of the Uganda railways.

The route, he said, had been surveyed from the ground, and was practical, as far as they could see, for seaplanes. Both Kenya and Uganda had sent dispatches to the Colonial Office requesting sanction to spend £2,000 each on the scheme The Sudan authorities had unofficially informed the Air Ministry that they were willing to do the same, and his company were contributing a similar sum if required. In their estimate the company stated that if half load was carried for the period of one year the subsidy required to show a return would be £60,000, and if full load was carried £30,000. They hoped that, after flying over the route, they could reduce the figure of £60,000 to somewhere in the region of £45,000, but they did not expect the figure for full load to be reduced in the same proportion.

GOOD WORK.

Old timers in aviation will be interested to know that the preliminary tests with the English Electric Company's new Kingston boat with the two Napier engines and an all-metal hull were carried out by Mr. Marcus D. Manton, who will be well remembered as one of the Grahame-White exhibition pilots at Hendon before the war. He gave up flying after the war, during which he did a vast amount of test flying for the Grahame-White Co. and for Samuel White and Co., of Cowes. A year or so ago he returned from mere commerce to flying and joined the English Electric Company.

In connection with the Kingston's flight it is interesting to note that the pilot who took the machine round was Flt. Lt. B. C. H. Cross, who was actually taught to fly at Hendon in the very early days of the war by Mr. Marcus Manton. After quite a short preliminary test at Lytham Flt. Lt. Cross went straight off on his long journey to Cattewater, apparently following the coast the whole way instead of taking a compass course to Holyhead and thence to Pembroke. This was certainly a wise thing to do with a brand new machine.

The flight from Plymouth to Felixstowe was unusually good, because it was made against a strong north wind all the way. On arriving at Felixstowe the pilot had to be lifted out of the machine, as he was nearly frozen stiff and one of his fingers was actually frostbitten.

CHILE PURCHASES GERMANO-SWEDISH AIRCRAFT.

Although the Chilean Government has declined to confirm or deny the report which is in circulation throughout South America, the Swedish company, A. B. Flug Industrie, who are constructing three-engined Junkers aircraft in Sweden, definitely states that the Chilean Government has ordered ten Junkers aircraft to be delivered before March, 1926.

These aircraft will be of the three-engined type equipped for military use. The Swedish Government has authorised the exportation of a number of Junkers engines with which these aircraft will be fitted.

This activity on the part of Chile can only be accounted to be due to the Tacna-Arica dispute between Chile and Peru.

So far the American Plebiscite Commission under General Pershing, now sitting at Arica, has reached no satisfactory conclusions, and it now awaits the result of the voting of the resident Peruvians and Chilians in the disputed provinces which have been occupied by Chile for the last forty years.—H. G. C.

CHRISTMAS LEAVE.

Cheero Corp! No picquets for a week.
You can take my guard and welcome, if you care.
I shall sleep all through reveillé, and go
walking with my Sally
When the bloomin' Serjeant-Major 's walking
lonesome on the Square.
Bugles play. Hear 'em say,
"We'll make it 'ot for you one fine day."

Canteen shut? Who cares a hoot for that?
I've stored me kit, and extra-greased me 'air.
With me pass I'm jeldee hoppin' to the little
bird at Wappin',
While the bloomin' Serjeant-Major 's gettin'
purple on the Square.
Bugles play. Hear 'em say,
"We'll make it 'ot for you one fine day."

Christmas leave! Goodbye to all parades,
An' queueing up for undercooked bergoo;
An' that blessed Avro (dang 'er) is tucked up
in her 'angar,
An' the bloke who gave me pack-drill 's in the
Sick Bay with the flue.
Bugles play. Hear 'em say,
"We'll make it 'ot for you one fine day."

Come on, blokes! Here's the tender for the station!
There's lots of luck in life, and I've me share.
The Badgie's cheeks are glowin' with the bloomin'
tune He's blowin',
And—blime, Bill! The Serjeant-Major 's smilin'
on the Square.
Bugles play. Hear 'em say,
"Bless you, lads, we'll need you all some fine day."

S. C. G.

[NOTE:—Halton and Cranwell, with their Oxford accent, must forgive the dialect of the War-time R.A.F.—ED.]

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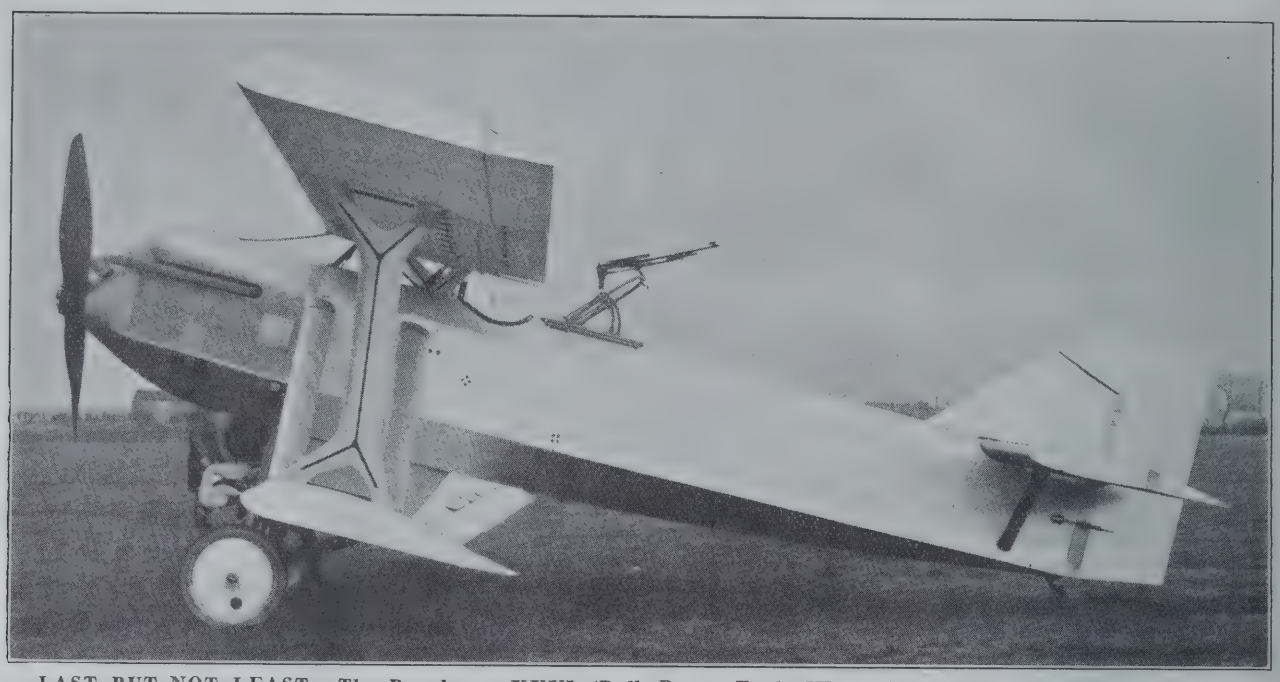
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THE LAST NOVELTY OF 1925.



LAST BUT NOT LEAST.—The Beardmore XXVI (Rolls-Royce Eagle IX) designed by Mr. W. S. Shackleton.

THE BEARDMORE XXVI.

The Beardmore XXVI two-seater fighter, a preliminary account of which was published in THE AEROPLANE in the early summer of 1925, has now been completed and tested with very satisfactory results, and will shortly be delivered to the Latvian Government, for whom it is being built.

The machine is a thick-winged biplane with rigid bracing, fitted with a Rolls-Royce Eagle IX engine, and is of normal mixed timber and steel construction. The general form and arrangement are adequately shown in the photographs reproduced.

There are a number of interesting features to be found in this machine. Among them may be mentioned the undercarriage, which has a combination of steel springs and friction shock absorbers, giving a travel of 11 inches. This undercarriage has been severely tested, both by normal use and by high-speed taxying trials over very rough ground, and has given very satisfactory results.

The machine is armed with the new Beardmore-Farquhar machine-gun. Two, fitted with C.C. interruptor gear, are arranged to fire forward, and either one or two may be carried on the Scarff ring in the after cockpit. A photograph shows one of these guns fitted to the gunner's ring from which it will be seen that the gun is of very compact form, and carries a revolving ammunition tray. The Beardmore-Farquhar gun can be synchronised satisfactorily, and this, together with its compact form and light weight, permits it to be used as the sole weapon on aircraft of this type. The advantage of using a single type gun for both purposes is obvious.

Very great care has been taken with the arrangement of the after gunner's cockpit. It is very close indeed to that of the pilot, thus making for easy communication between the two occupants. It is very roomy—the fuselage here being 3 ft. wide by 4 ft. 1½ ins. deep. The view in all directions is extremely good, and the field of fire for the movable guns is unusually free from obstruction.

The absence of wire bracing, either in wings or tail, removes all risk of damage to the structure when firing either forward through the wings or aft over the tail.

A Napier Lion engine may be installed as an alternative power plant, giving an extremely high performance.

SPECIFICATION.

Span (top)	37 ft. 0 in. (11.57 m.)
Span (bottom)	32 ft. 0 in. (9.76 m.)
Wing area	356 sq. ft. (33 sq. m.)
Weight loaded	3,980 lbs. (1,805 kg.)
Wing loading	11.18 lbs./sq. ft. (55 kg./sq. m.)
Power loading	10 lbs./h.p. (4.5 kg./h.p.)
Estimated performance :—	
Max. speed	145 m.p.h. (222 km.)
Climb to 15,000 ft. (3,575 m.)	20 mins.

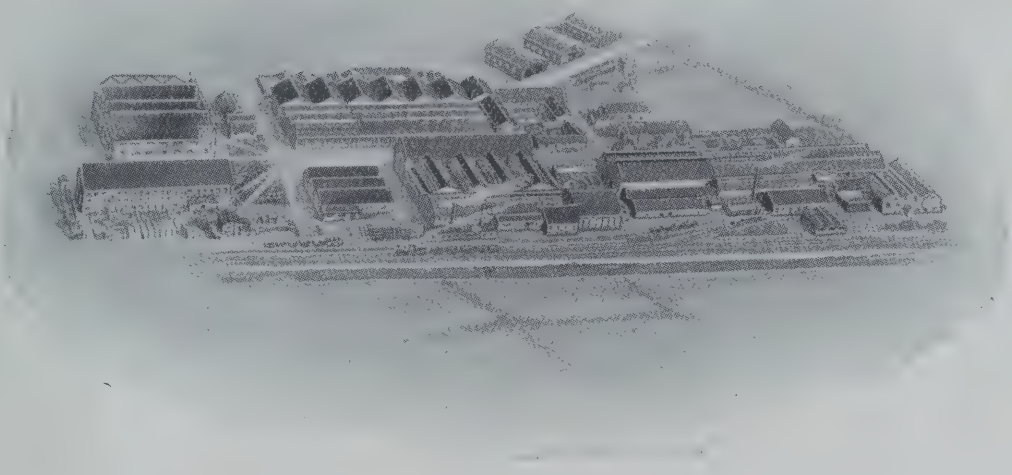


AN INDEPENDENT EFFORT.—The Beardmore XXVI (Rolls-Royce Eagle IX) built for the Latvian Government, free from the specifications of Air Ministry experts.

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FOR COMMERCIAL AND MILITARY PURPOSES.



View of the Westland Works photographed from a Westland Aeroplane.

The rapid advance which has been made in the field of commercial Aircraft is due to a large extent to the practical information and experience gained in designing, constructing and testing Aircraft of Military type by firms who realise to the fullest extent the vital importance to industry of the development of Aircraft.

The Westland Aircraft Works have been privileged to design and construct machines of all types for the British Government, and the same skill in design and manufacture has been applied to their commercial Aircraft.

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THE JUST WORD.

For many years, probably ever since history began, there has been a need in all languages for a word which expresses a certain type of person who is at the same time a pioneer of and a hindrance to all new movements, a person who is not exactly what we call a lime-lighter but yet one to whom a certain amount of limelight is essential. That word has been discovered at last. And like so many useful words it comes from America.

Its precise connotation cannot be better expressed than it is in an article by one Cy Caldwell, lately chief pilot to Glenn L. Martin of Cleveland, but formerly, during the now somewhat remote tribe fight in Europe, an officer in the Royal Flying Corps. At 58 Squadron Dinner recently the name of Cy Caldwell somehow came into the conversation and apparently most of those present at the dinner had either served with the redoubtable Cy in France or at any rate had heard of him, for quite a goodly portion of the evening was spent in telling stories of his deeds and misdeeds.

Like so many sporting Americans he joined the British Army as a neo-Canadian and he made war in the best Nordic style, somewhat as a hypertrophied form of sport. Of late, in between spells of combatting the atmosphere, Cy Caldwell has taken to expressing himself in print, which he does as effectively as in speech. His Cleveland notes in Mr. Lester Gardner's paper *Aviation* were one of the joys of the American aeronautical community. And more recently he has been promoted to writing full-dress articles in that leading American aeronautical publication. His article on the Ford Commercial Airplane Tour was the most illuminating description possible of that entertaining performance. And his article entitled "Seen Through the Bayonets," describing the Pulitzer Trophy Contest at Mitchell Field, where everything was guarded by troops in a manner which made our Air Ministry's Secret list look like blatant publicity, was not only a vivid description of the events but must have gone far to kill American militarism in connection with aviation.

With these preliminary remarks one introduces Mr. Caldwell's erudite dissertation :—

Whence the Modock?

African Progenitor Traced to His Original Useless Wenlike Origin.

By Cy Caldwell.

mo-dock, mo-dock, *n.* One who attaches himself to any popular movement for purposes of self-advertisement or social prestige; a *wen* or *bunion;* a total loss. Derived from the Latin, "Mozo"—nothing; and the Greek "Docko"—divided by two. *Woofus's Unabridged Dictionary.*

The definition quoted above is clear enough, so far as it goes, but the earnest seeker after truth and first causes must seek further if he would find just how the word was coined and how it came to be included as a standard word in our language. It was used originally to tag a tribe of African bushmen discovered by Professor J. Woofus, who, in his interesting book of travels, "Modocks I Have Met," says of them :

"An examination of their skulls by use of stethoscope, microscope, and gas-mask—for the tribe were in bad odor politically at the time—revealed an internal condition of partial vacuum. New ideas given them would enter their skulls with a peculiar plop, rattle about inside for a moment, and then fall right out. I found this tribe utterly incapable of thought and, for over a year, lived with them on a pleasant basis of mutual understanding.

"Their social customs were strange. They would gather at a feast, which they would devour with wolfish ferocity, after which one of their number would rise and make a very long speech, which none of the others listened to. This, I may add, was the only sign of intelligence I observed in the Modocks. When the speakers had concluded, his listeners would signify their relief by clapping their hands loudly, after which another Modock would rise and not be listened to either. This odd procedure would go on far into the night, Modock after Modock getting up, talking, and saying nothing, and sitting down accompanied by loud cheers.

"They subsisted mainly on the flesh of the dodo, a very dull-witted bird, even when nearing extinction, owing to the attacks by the kiwis. This diet they varied by eating a fish called the sucker, which is even more plentiful in Africa than in New York, its native habitat."

Modock Origin Forgotten.

We have quoted enough from the Professor's book to discern how the name Modock was applied fittingly to various excrescences or morbid growths that have attached themselves to aviation. In thoughts and habits they so nearly resemble the African Modock that the name has been given them without question, and even the dictionary describes only the present American Modock and forgets entirely his African prototype. This is surely a compliment to the African.

The Modocks have always been prominent in America; they are professional joiners and will join anything that promises the possibility of getting their names and their pictures in the papers. These are the people standing right next to the Governor when he lays the corner-stone of the new asylum; these are the people whose names appear in the papers under the words : "At the speaker's table were—" But it was not until 1903 that the Modocks threw their energies solidly into one line of work. They discovered aviation.

Before making their first flight at Kitty Hawk, N.C., the Wright brothers spent some time working on their little motor. Pausing one day in their labours they straightened up and looked around them. They saw, leaning on the frail elevator that cracked beneath his weight, a small, insignificant man with an earnest, though slightly vacant expression on his face. He was a Modock. How he got there, nobody knew. But there he was, slowing up aviation. And he's been at it ever since.

He witnessed that first historic flight, got in the papers as a witness, and was on hand and in the way again at Fort Mayer, Va., in 1908, when the Wrights demonstrated their plane and sold it to the Government. The Modock again got in the papers as "Prominent Clubman witnesses signing of Contract." This tickled him to death and he rushed back to Washington, his earnest face almost expressive of an idea, and told his fellow-Modocks of the amazing invention that would get them all in the papers, if only they would attach themselves, leechlike, to it.

Form Club to Talk.

At once they formed the Modock Club of America, and all the well-known broken arches in the country immediately joined. Old women of both sexes became charter members and had a whale of a good time at the conventions, making speeches that nobody except reporters ever listened to. But so long as they listened,—and got bits of it, much garbled, in the papers—the whole purpose of the speaker had been attained. That was all he was after, anyhow.

The avowed purpose of the Club was to further the interests of aviation which was written into the Charter with sly winks and nods. While that was going on, the members were busy handing their pictures and and typed copies of their speeches to the reporters. A lot of personal publicity got into print so that people at large soaked up the idea that the Club was responsible for whatever progress aviation made.

It really did progress, for the Wrights and Glenn Curtiss and Glenn L. Martin and others of the boys, were building planes, and, simple fellows, even flying them. However, for every flight these poor chaps made in a plane, the Modocks made at least two vocal flights at banquets so this competition was not serious.

With the entry of the United States into the war, American aviation took a leap ahead and lugged the Modocks with it. They branched out tremendously. The papers were full of them. They descended on Washington as $1.00 a year men, which was about the most expensive dollar the country ever spent. They all got themselves little American flags which they waved heartily and bravely when the boys marched down Pennsylvania Avenue towards the war. Some of them wore out as many as three flags during the war, so you can see how they must have suffered.

During the war, the Modocks dashed about, eating dinner after dinner, making speech after speech. Production was speeded up to such a terrific pace that all the machinery rattled and fell apart every week or two and had to be glued together again before any more planes could be turned out. Armed guards were put on all the factories so no airplane could escape and get to the war before it was over.

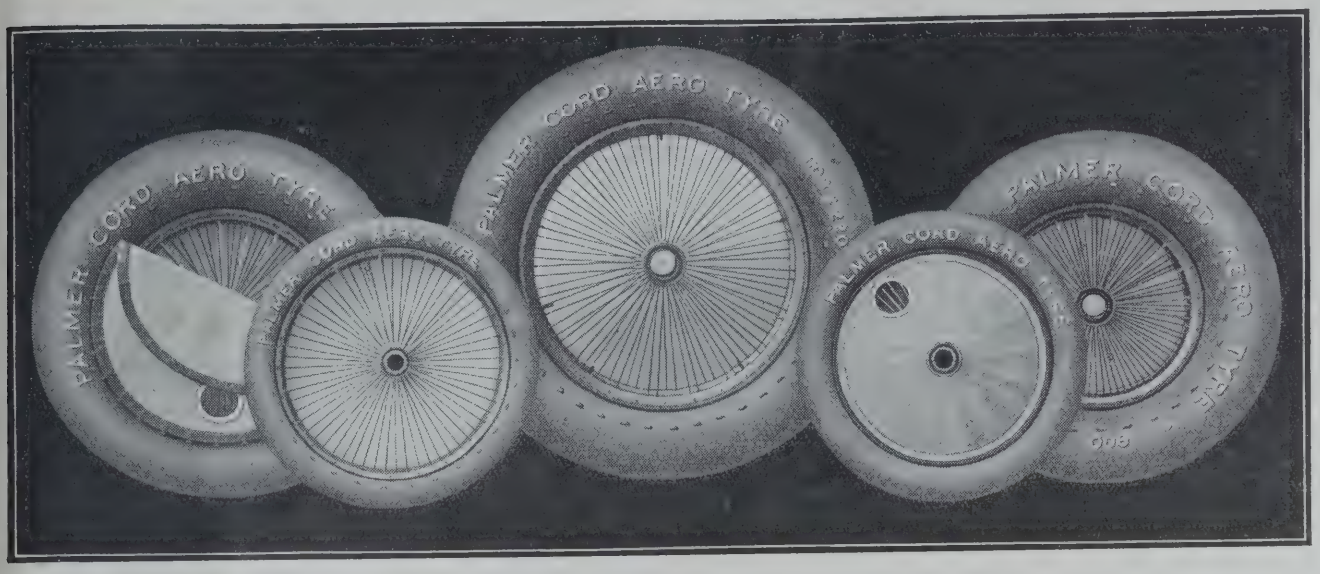
The deplorable part of the whole affair was that, in spite of all the Modocks could do, the Army and Navy actually did get Air Services together and with the help of France and England got their pilots up in the air on foreign built airplanes.

These boys were young and enthusiastic and took the war seriously and in many cases shot down the enemy. Such had never been intended, and was a blow to the Modocks. Instead of the usual news of dinners and speeches and resolutions, there began to creep into the papers items about American pilots shooting down enemy aircraft. The whole thing became inexpressibly crude and distressing, and 16 resolutions were passed at a banquet condemning the business. Fortunately, however, we were able to stop the war before any of our airplanes escaped from the factories to add to the carnage overseas.

When it was learned that one little Modock was getting all the publicity the other Modocks crept quietly away saddened but no wiser. Such blows dealt the Modock Club of America undermined its constitution, so no one was surprised when it vanished out.

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375×55	168	111.12	25.4	Central	700×100	99	178.	38.89	132/46	1000×150	201	185.	60.32	125/60
300×60	16	111.12	25.4	Central	,,	112	150.	38.09	Central	,,	210	185.	60.32	Central
,,	17	72.39	12.7	Central	650×125	119	178.	55.	132/46	1000×180	148	220.	80.	Central
450×60	30	89.	31.75	Central	,,	147	178.	55.	Central	,,	149	185.	55.	Central
,,	138	130.	38.09	Central	750×125	77	178.	44.45	132/46	,,	155	220.	66.67	Central
575×60	21	160.	28.	Central	,,	92	185.	55.	135/50	,,	166	185.	55.	125/60
,,	34	150.	31.75	104/46	,,	95	185.	55.	Central	900×200	107	185.	55.	Central
,,	111	150.	38.09	104/46	,,	96	178.	55.	132/46	,,	108	185.	55.	125/60
600×75	21	160.	28.	Central	,,	99	178.	38.89	132/46	,,	128	220.	66.67	Central
,,	34	150.	31.75	104/46	,,	112	150.	38.09	Central	,,	137	250.	80.	Central
,,	111	150.	38.09	104/46	800×150	82	185.	55.	135/50	,,	202	185.	60.32	Central
700×75	78	178.	44.45	132/46	,,	85	185.	55.	Central	1100×220	134	220.	66.67	Central
,,	79	178.	44.45	Central	,,	161*	185.	55.	135/50	,,	136	250.	80.	Central
,,	100	178.	38.09	132/46	,,	163*	185.	66.67	135/50	1250×250	133	250.	80.	Central
,,	101	178.	31.75	132/46	,,	169†	185.	55.	135/50	,,	154	304.8	101.6	Central
700×100	77	178.	44.45	132/46	1000×150	211*	185.	60.32	135/50	1500×300	115	304.8	101.6	Central
,,	92	185.	55.	135/50	,,	131	220.	66.67	Central	,,	126	304.8	152.4	Central
,,	95	185.	55.	Central	,,	150	185.	55.	Central	1750×300	139	400.	152.4	Central
,,	96	178.	55.	132/46	,,	167	185.	55.	125/60					
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SINK (240

It rose, however, Phœnix-like from the dead ashes of the past, and came to life,—or as near an imitation of life as could be expected,—as The National Modock Association.

To give a semblance of aerial activity to the association, a few regular fellows were dragged in as State Governors and members. But these were too few in numbers to make much difference. They struggled along, growling and kicking, but nobody paid any attention to them. They were out-Modocked by the majority. All they could do was to attend the conventions and listen to speeches by Fuddydudds.

It was not to be expected that any progress in aviation would be encouraged by a race whose African prototypes had never been able to catch up with anything smarter than a dodo kiwi or a sucker. So, when a bird, who knew only how to fly and fight, got up and pointed out a few things that were all wet, the Modocks leaped on him with hoarse growls and proceeded to bite him wherever it would do the most good. He was promoted from Brigadier to Colonel, and the elevator is still going to the basement.

At this date, the flying personnel of the Army and Navy, their technical staffs, the Air Mail, the manufacturers, and the commercial operators are struggling on, trying to make the airplane get somewhere, anywhere except where it is,—nowhere. It's an unwanted child, slightly malformed, somewhat under-nourished. Test pilots are struggling with it and telling engineers what's the matter with it. The engineers are practising plastic surgery on it, hoping it will gain strength. Commercial operators are giving it a chance to earn its keep and grow to maturity.

Anyhow the Modocks are solidly behind aviation,—how far behind I can't say. They have conventions and dinners and speeches, and make resolutions and motions—motions surprisingly like those of a windmill that goes round and round and round and travels forward not an inch.

THE LIGHT AEROPLANE CLUBS.

The Lancashire Aero Club.

This week the weather has been almost respectable. Flying took place on Wednesday, Thursday, Saturday and Sunday. Dual, 8 hrs. Solo, 1 hr. 35 mins. Tests, 1 hr. 20 mins. Total time flown, 10 hrs. 55 mins.

Both "LV" and "LR" were in use. Twelve people had instruction. Mr. Cantrill gave "dual" to H. Hardy 45 mins., J. Wilkinson 20 mins., C. Colley 40 mins., P. Michelson 55 mins., S. Crabtree 30 mins., C. Parker 35 mins., A. Rodman, 5 mins. Mr. Scholes gave dual to P. Michelson 20, A. Macnair 40, D. Tummers 10, S. Crabtree 40, C. Parker 1 hr., R. Williams 10, J. Leeming 10, M. Lacayo 10.

The following made solo flights: A. Goodyear 15, A. Goodfellow 35, R. Williams 15, J. Leeming 15, M. Lacayo 15.

A merry crowd was present on Boxing Day. Fortunately Mr. Scholes and the Chairman had had the forethought to order one roast goose for their lunch. Flushed with the morning's success they invited sundry members to come to lunch at 1 o'clock, the result being that each person was able to have one portion of the said goose about the size of a postage stamp. The Club's tame cocktail mixer made some of his famous Bunsen Burners and the resultant hunger was only stemmed by vast supplies of Cheshire cheese.

The De Havilland Aircraft Co. Ltd. have received an order for a new Moth, complete with 60 h.p. Cirrus engine, from Sir Charles C. Wakefield.

This machine, which will be delivered by air to Woodford Aerodrome early in January, has been presented to The Lancashire Aero Club by Sir Charles Wakefield, who is President of the Club. An aeroplane of this type costs nearly a thousand pounds.

Since September the Club has trained a large number of people. Thirty-six have had "dual" instruction and six more have been taught to fly and are now flying alone. Pupils have flown over 100 hours.

The Newcastle-upon-Tyne Aero Club.

Report for week ending Dec. 27:—Flying times, "LX" 13.23, "LY" 4.44. Total, 18 hrs. 7 mins.

Though some flying has been possible every day during the week, the weather has been bad throughout. Dual instruction:—Mr. W. T. Walton (4 hrs. 20 mins.), Mr. J. A. Somerville (1 hr. 23 mins.), Mr. H. H. Leech (2 hrs.), Mr. R. Whitfield (39 mins.), Mr. G. H. Twine (35 mins.), Mr. W. P. Gibson (first dual 15 mins.). Secondary dual:—Mr. R. N. Thompson (25 mins.), Mr. N. S. Todd (15 mins.), Mr. W. M. Mackay (30 mins.). Solo:—Messrs. R. N. Thompson (1 hr.), W. T. Walton (45 mins.), P. F. Heppell (49 mins.), N. S. Todd (20 mins.), W. M. MacKay (50 mins.). Passengers:—Miss Stephenson (15 mins.), Miss Douglass (30 mins.), Miss Skelton (15 mins.), Mr. Heaton (15 mins.), Mr. Leete (30 mins.), Mr. A. E. Leech (15 mins.), Mr. A. Peacock (15 mins.), Mr. Cigale (5 mins.).

Major Packman carried out a 25 mins.' test for barograph adjustment to 4,000 feet. Four other tests totalled 25 mins.

The second 100 hrs.' flying of the two Moths was completed on Sunday morning, during which time no replacements had been made, but Mr. MacKay has already (during the first hour) marred the record for the third century, by damaging the axle of "LY" when landing after a solo flight on Sunday morning. Needless to say, he had to stand a lot of good-natured chaff about it, but he took it all very cheerfully. A new axle was wired for immediately, so it is hoped to have the machine on service on Tuesday.

It is thought that the machine may have been overloaded, as Mr. MacKay is not a light-weight at any time, and this happened at the end of what has been, this year, three days' Christmas festivities.

During the last flight on Saturday, a very interesting experiment was carried out by Mr. John Bell. Major Packman had Mr. Gibson up under instruction and when it became almost dark, Mr. Bell stole out on to the aerodrome with a candle, which he lighted when well out, and the Moth immediately came down and circled around the light. This species is, fortunately, more careful than the earlier types of moth and did not fly "into" the light—and the holder.

Mr. R. N. Thompson caused a very sickly feeling among a number of the members, on Sunday, when he described his feelings during an intentional spin which was included in his secondary dual training. He was, however, very enthusiastic and reassuring about the manner and quickness with which control was regained, when he took over.

The Yorkshire Aeroplane Club.

The following account of the Yorkshire Club's doings is taken from "The Olympian," the house organ of the Blackburn Aeroplane and Motor Co. Ltd.:—

Owing to the writer's temporary absence from Leeds, and an unfortunate misplacement of his notes on the meetings, these notes will not include a complete account of the proceedings of each meeting, nor will they describe two of the later meetings which he was unable to attend. Instead an attempt will be made to outline the progress of the Club from memory. As members know, only statements issued by two of the committee, not including the writer, can be taken as authentic, so if they prefer to disbelieve this the writer will not blame them. Absence of authentic material is his excuse.

In the November issue the impression was given that a certain piece of land on the Wakefield Road at Rothwell would almost certainly be rented as an aerodrome by the Club. This impression was also shared by members of the committee. However, once again fate stepped in, and seemingly hopeful negotiations came to nothing. First of all a few Harrogate members called themselves together and held a meeting on their own. It appeared that they were unable to appreciate the beauties of Rothwell, and the distance also not only lacked enchantment, but also brought forth inconvenience. Working themselves up into a frenzy they swore frightful oaths of allegiance one to another, and forthwith indited a missive of protest and dire foreboding to the committee.

At the next committee meeting the aerodrome question was again discussed and Mr. Patrick, the tenant of the Rothwell land, and a friend of his were brought into the meeting. The question of rental, rights, in fact of everything connected with the proposed aerodrome, were discussed at length, until both parties came to an understanding and the way seemed open to an agreement. Then the Harrogate letter was discussed at greater length and while the committee wished to accommodate all members as conveniently as possible, they decided that the Rothwell site, being the only land available after exhaustive searches throughout the countryside, ought to be taken. However, a committee meeting would be held in Harrogate, and the Harrogate members would be invited to attend and state their case.

This Harrogate meeting took place on Nov. 5 at the Royal Hotel, and was attended by three Harrogate members with the exception of those on the committee. Each in turn rose and stated his objections, and each statement brought about a lengthy discussion. Professor Brodetsky spoke at considerable length and explained very clearly the position of the club and the difficulties which had arisen, particularly with regard to an aerodrome. All members agreed that a start must be made soon, and after so many failures in obtaining land it seemed that this opportunity at Rothwell ought not to be missed.

Mr. Addyman then got up and made three alternative proposals, two of which were not received favourably by the committee. The third, which suggested negotiations in connection with the old aerodrome at Sherburn-in-Elmet, aroused considerable interest. Mr. Addyman stated that he had visited the site, had been very favourably impressed by its possibilities, and considered that negotiations with the landlord and tenant would be favourably received. During the discussion which followed all members appeared agreed on the suitability of the site. It was therefore proposed that proceedings should be taken at once to get in touch with the landlord to ascertain whether the Club's negotiations would be entertained, and that a report should be made to the committee within a week. If unsuccessful it was agreed to proceed with the Rothwell proposition, and the Harrogate members undertook to abide by this decision.

During the following week several members of the committee visited the Sherburn aerodrome and found it very suitable. The total area previously used by the Air Force was not now available, but by the removal of one fence an area of about 70 acres would be available. The landlord appeared very favourably disposed towards the Club, and wished to be of assistance in meeting their requirements; the owners of the hangars and other buildings, Messrs. Burnett, wagon builders, also appeared willing to rent hangar accommodation, living accommodation, and a club-house if necessary, and also to allow the use of the road.

On Nov. 16 another committee meeting was held at the Queen's Hotel, Leeds. A report on the Sherburn aerodrome indicated that the site was considered excellent and that negotiations for its use had proceeded very satisfactorily. At the same meeting a letter from the landlord of the Rothwell field was read; this gave the Club to understand that they would not be permitted to use the land under any circumstances—another addition to the long list of failures. A meeting with Mr. Burnett, one of the owners of the hangars, was proposed and fixed for Nov. 19 at Sherburn. In addition to the aerodrome discussion arrangements for a general meeting were made.

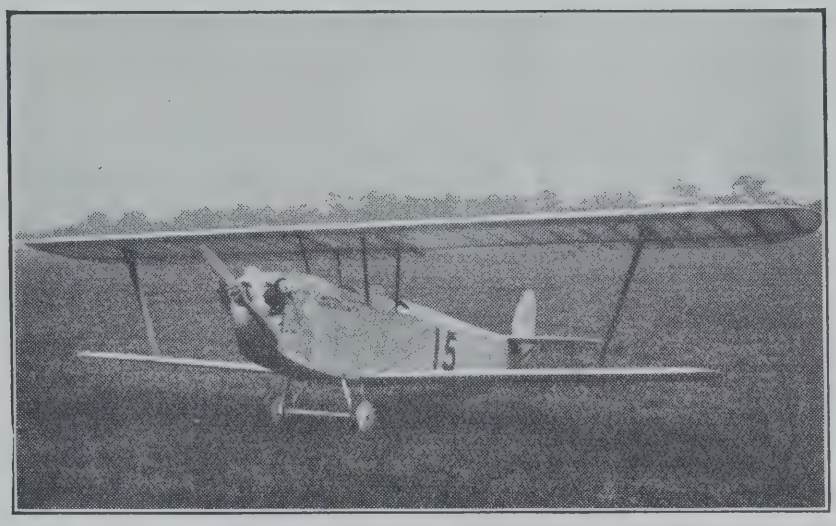
On Nov. 19 Professor Brodetsky, Messrs. Hayes, Oldroyd, Little, Addyman, and Thornton went out to Sherburn and were very hospitably received by two of the Burnett brothers. Proposals for the use of the hangar accommodation, etc., were made, and the meeting proceeded with every indication of favourable terms being arrived at between all concerned. Messrs. Burnett were unable to make any definite decision at this meeting owing to the necessity of consulting another brother at Doncaster.

The position of the Club up to this date, then, is: That the Rothwell negotiations have turned out a failure, but that the Sherburn negotiations are proceeding very favourably, and that the aerodrome is considered excellent, with conveniences which would be used to establish not only an efficient aviation centre, but also a good headquarters for the social and recreational sides of the Club.

(Signed) G. C. F. Ely (*Local Sec., Brough*).

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M. DEWOITINE ON METAL CONSTRUCTION.

The paper on Metal Construction of Aeroplanes by M. Dewoitine was read before the Institution of Aeronautical Engineers, in the unavoidable absence of the author.

In his paper M. Dewoitine outlined the reasons which had led in France to the general adoption of metal structures, and to the choice of duralumin in particular.

Improvement in the aeroplane might come either from improvement of its aerodynamic qualities, in the power plant, or in the actual construction. Aerodynamically there was no ground for expecting great improvements except such as might result from the adoption of thick cantilever wings and the suppression of bracing resistance. For the realisation of this type metal construction was practically imperative.

Although progress had occurred recently in regard to power plants it had to be realised that the present engine was a very highly-developed affair and very great improvement was not to be expected.

Therefore the chief hope for rapid improvement lay in improving the structure in the direction of the reducing of its weight relative to the total loaded weight of the machine. It was possible to do this by sacrifice in strength—but fortunately official control had prevented this. In France the tendency was to increase the stringency of strength requirements—as instance the fact that the author's D.1.C.1. Fighter had been sand load tested to a factor of 16. This figure might seem exaggerated, but in his opinion could not safely be much reduced. (It should be noted that the French method of computing factors of loading differ widely from the British and that this figure of 16 cannot safely be compared with the British factor for similar types.—Ed.)

Limited by these facts the designer must look towards the choice of improved materials and of improved methods of using them. The choice lay between metal and wood. The question of which to use had been in dispute from the earliest days of aviation. In France, Clement, Voisin, Schmidt, Esnault-Pelterie and others had used steel largely in their structures at very early dates.

The advantages of wood in regard to ease of working rendered it extremely useful for the production of experimental machines. For production in small quantities this advantage remained. It was easy to rectify errors or lack of precision in the design in a wooden machine by skilled workmanship.

On the other hand wood had numerous disadvantages. The selection of timber was a difficult matter. Tests on a single sample did not give the qualities of a whole consignment, as was the case with metal—and considerable variations in the physical qualities of the timber complicated design and called for extra margins of strength. These variations continue in the finished component or complete machine, according to age, and so forth. No varnishing is sufficient to protect wood against changes in strength and density caused by atmospheric effects.

The joining of wood by glueing was a serious danger, for the glue was liable to decomposition, and in some cases to complete disappearance, in the course of time.

Aeroplanes built of wood to the same design varied notably in weight and in performance, and these variations resulted from the qualities of the material of construction. Wooden construction led necessarily to a heterogeneous structure comprising fabric covering, struts, and wire bracing, and the use of different materials for different purposes precluded the attainment of a structure of uniform modulus of elasticity.

With metal most of these disadvantages disappeared. Metal could be obtained in all forms with constant or consistent mechanical properties, and these properties could be checked by tests on samples from each batch of material. Metal could be jointed by rivetting or even soldering, the strength of such joints was calculable and not subject to variation with ageing. Simple precautions sufficed to prevent deterioration of a metal structure—at least in the case of land machines not subjected to the attack of salt water or air.

Though opinions on this point differed, he personally believed that repairs could often more easily be made on metal than on wooden aeroplanes.

With metal a homogeneous structure became possible, and the strength of all members were calculable with certainty. Hence a greater uniformity of strength, a lower factor of safety to cover ignorance, and a reduced structure weight.

For production purposes, the use of jigs, and the possibility of extremely accurate workmanship secured a uniformity of dimensions in detail, unattainable with wood. As a result metal aeroplanes proved in production to have a very uniform weight for each type, assembled accurately and without rigging difficulties, and gave uniform performances.

These advantages of metal construction cannot be realised without overcoming difficulties, and these difficulties have deterred many constructors from adopting metal construction. It is not practical to put in hand work on an all-metal machine before complete and accurate working drawings have been made. Inaccurate or incomplete drawings will lead in this case to waste and difficulties which cannot be overcome by workshop dodging. The design work must include not only the design of the machine but the laying down of processes of manufacture, and therefore calls for a very complete and competent drawing-office staff.

The production of a machine to the design involves the provision of jigs and special tools for its production. Thus the original machine involves very high design and tool costs. These costs will fall with the development of the technique of metal construction and as methods and processes of manufacture become more or less standardised. It is in the development of this special technique that the constructor of all-metal aircraft will find most room for effort. When a type is produced in large numbers, these high initial costs are spread over the whole series.

If it is possible to adopt efficient mechanical methods of construction, such as stamping, pressing, and so forth, the cost of production falls rapidly with increasing numbers produced, and for specially-skilled craftsmen one can substitute unskilled, and often feminine, labour.

In the case of the Dewoitine D.1.C.1 Fighter, an initial outlay of 1,500,000 francs will be repaid by the production of not more than 100 machines, in the opinion of M. Amiot, of the Société des Emboutissages et Constructions Mecanique, who produce these machines. Moreover, much of this original equipment can be used for the production of other machines of a type descended from the original.

So far he had dealt only with metal construction in general. The question remained as to what metal to employ. The choice could lay only between steel and one of the light alloys of the nature of duralumin. On figures alone steel—provided one could use it at a tensile strength of 90 kg./mm.² (60 tons/sq. in. appr.)—would have an advantage over duralumin. Such a material was difficult to work. It would be dangerous to work then at all without heat treatment, and such treatment became impracticable for members of large dimensions. Boulton and Paul had produced some extremely fine examples of steel spars, but he feared that they must have been extremely costly, and in any case they had not in France either the steels, nor the experts in their working who would be required for this type of work.

A drawback in the use of steel was that small parts which did not actually carry stress—such as rivet-heads, fillits, and other small items—added appreciably to the total weight owing to their high density.

He had come to the conclusion that for small machines steel was in fact too heavy because sections designed from ordinary stress considerations were too thin to possess local rigidity. So far as he knew no aeroplane of the "Fighter" type had ever been built successfully in steel throughout.

For large aeroplanes, this disadvantage of steel diminished—but one would still have to use mild steel rivets in H.T. steel members and so would not utilise the material to the best advantage.

The most important drawback of steel, however, was the fact that it would not solve the problems of the construction of the aeroplanes of the future. The logical end of their present experiments was the real all-metal aeroplane, metal covered, with the covering carrying its share of the stress. In any practical thickness steel was too heavy for covering.

With light alloys one escaped from the difficulties of extreme thinness and consequent secondary failure which were encountered with steel, and metal covering was possible.

After discussing at some length detailed considerations following from these general views, M. Dewoitine repeated that not only his own experience, but that of other makers in France, fully bore out the claims made for duralumin as a constructive material, and expressed the opinion that we in this country would eventually discover that our mistrust of this alloy was ill-founded.

In the discussion which followed, Mr. J. D. North, of Boulton and Paul Ltd., said that many of M. Dewoitine's statements were very strongly borne out by their experience, particularly as to the importance of the development of technique. The cost of tools, etc., was very high,, and the only solution of this difficulty was careful systematisation. Boulton and Paul did not confine their attention to steel, but during their first few years of work the use of duralumin was prohibited, and they were forced to develop steel construction. The machines they had produced were mostly day-bombers, but he could not agree that smaller machines would present greater difficulties in steel. M. Dewoitine was wrong in his facts as to the steel fighter; the British standard Siskin was all steel.

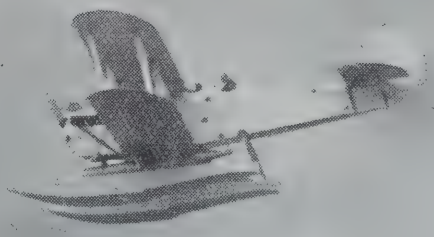
Steel spars were lighter and cheaper to produce than duralumin ones, but the technique of design was very complex. The difficulties of heat treatment were not serious, they could heat treat spars of up to 70 ft. length. He preferred steel for main members and used duralumin for the less highly-stressed parts. He agreed that if the cantilever monoplane with a stressed skin was the goal to aim for, duralumin was the right material, but doubted if the type had the advantages sometimes claimed for it.

Blackburn
AIRCRAFT

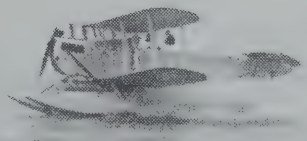
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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR WEEK ENDING DEC. 26.

Trips per Day.—Monday, 3; Tuesday, 8; Wednesday, 6, Thursday, 3; Friday, 8; Saturday, 11; Sunday, 0.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 27, passengers 81, freight 11 tons.

AIR UNION:
Paris—London: Machines 9, passengers 27, freight 8½ tons.

K.L.M.:
Amsterdam—Rotterdam—London: Machines 6, passengers 7, freight 2 tons.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES: Nil.

Total number of trips by British Machines: 27, carrying 81 passengers. Foreign machines: 15, carrying 29 passengers.

Comparative Figures:

For week ending Dec. 20:
Machines, 42; Passengers, 110; Crews, 51; Total personnel, 161.

Corresponding week, 1924:
Machines, 35; Passengers, 82; Crews, 39; Total personnel, 121.

Corresponding week, 1923:
Machines, 51; Passengers, 87; Crews, 77; Total personnel, 164.

Corresponding week, 1922:
Machines, 52; Passengers, 168; Crews, 100; Total personnel, 268.

Corresponding week, 1921:
Machines, 49; Passengers, 108; Crews, 73; Total personnel, 181.

Corresponding week, 1920:
Machines, 10; Passengers 9; Crews, 18; Total personnel, 27.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Monday, 1; Tuesday, 0; Wednesday, 7; Thursday, 11; Friday, 0; Saturday, 4; Sunday, 0.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne; London—Rotterdam—Amsterdam—Berlin: Machines 15, passengers 55, freight 5 tons.

AIR UNION:
Paris—London: Machines 5, passengers 13, freight 4 tons.

K.L.M.:
Amsterdam—Rotterdam—London: Machines 3, passengers 8, freight 1 ton.

DEUTSCHER AERO LLOYD:
Berlin—Amsterdam—London: Machines 0, passengers 0.

SPECIAL MACHINES: Nil.

Total number of trips by British Machines: 15, carrying 55 passengers. Foreign Machines: 8, carrying 21 passengers.

Comparative Figures:

For week ending Dec. 27:
Machines, 23; Passengers, 76; Crews, 27; Total personnel, 103.

Corresponding week, 1924:
Machines, 45; Passengers, 103; Crews, 56; Total personnel, 159.

Corresponding week, 1923:
Machines, 11; Passengers, 17; Crews, 16; Total personnel, 33.

Corresponding week, 1922:
Machines, 41; Passengers, 95; Crews, 81; Total personnel, 176.

Corresponding week, 1921:
Machines, 30; Passengers, 49; Crews, 48; Total personnel, 97.

Corresponding week, 1920:
Machines, 8; Passengers, 10; Crews, 10; Total personnel, 20.

Croydon Notes.

It is with the very greatest regret that one hears that Mr. Stanley Baker, who has been in charge of the aerodrome for so long, is shortly to relinquish his appointment. Mr. Baker is to take up an important post connected with ground transport, with a well-known commercial undertaking.

He succeeded Major Greer in 1921, and since that time he has guided the destiny of the aerodrome with very great skill and tact, and he will be extremely difficult to replace. Everybody likes him, and his sense of humour makes him most entertaining company. But despite his good nature he has the power of command and none thinks of arguing when he issues an order.

One takes this opportunity on behalf of THE AEROPLANE and its readers in wishing him the very best of luck in his new post.

His successor has not yet been appointed, but whoever he is he will have a difficult task to follow Mr. Baker.

Mr. Hinchliffe, in the course of a little trip to Nice and back, was promoted by the newspapers to the title of Colonel. All pilots have for years held the rank of Captain (unfortunately without pay and allowances) in the newspapers. Why they should take Army ranks instead of R.A.F. ones only the papers know. One would have thought that they might have invented such ranks as Flight-Captain or Air-Major.

Anyway, there it is, and now Mr. Hinchliffe is a Colonel. Soon Mr. Barnard will become a General. There should be considerable competition for who is to be made the first Field-Marshal. But what will happen after that?

Over at A.D.C. Aircraft Ltd. Mr. Perry has been testing an Avro Airdisco and a D.H.9a. A number of Martinsyde-A.D.C.1s (Jaguars) are going through for a foreign order and these should soon be ready for test.—G. D.

The Flight Towards the Cape.

Mr. Cobham is creeping up behind his benzol supplies and is making some progress. One report says that the R.A.F. have handed over Government benzol supplies already in Egypt, and that a sufficiency is being transported to up-country depots by R.A.F. personnel.

The latest report is that he is at Khartoum, and has left for Kisumu, in Kenya.

Mr. Cobham's messages to *The Daily Mail* bear witness to his appreciation of the value of commercial aviation. He works into each dispatch the names Siddeley Jaguar, Imperial Airways, and De Havilland aeroplane, in a way which is at once entertaining and at the same time valuable publicity for those who have assisted his undertaking.

The Date of the Next Schneider Trophy Contest

The National Aeronautic Association of America have decided to hold the Schneider Trophy Contest at the Naval Air Station at Hampton Roads during the week starting Oct. 24. It was hoped that it would be possible to postpone the event until the spring of 1927, but it is understood that while all other parties were willing the U.S. Navy were against the postponement.

Considering the sporting way in which the U.S. Navy deliberately stood down and refused to claim a "fly-over" when the challengers of other nations failed to appear in 1924, and considering the vast sums which the Navy's Air Bureau has spent on building Schneider Challengers and Defenders during the past four years, one can hardly blame the U.S. Navy for wanting to get on with the job and make the Trophy its own.

As the Air Ministry have not yet announced any decision as to what they intend to do, we shall not have time this year to build and thoroughly to test new machines or to train

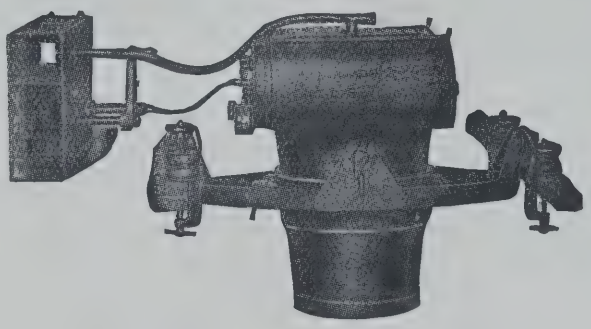


"ALLO BEEDLEKOM."—A photograph taken in 1919 in Newfoundland of Mr. F. P. Raynham and Mr. Biddlecombe just before they started their unsuccessful attempt to fly the Atlantic. Mr. Biddlecombe has since concentrated his energies on studying the English Channel at night.

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a complete team of pilots, and to provide reserves of each. So once again we have failed to make the most of our opportunities and the Air Ministry people have failed to do their duty. The best we can do now is to get on with the work at once and send out a team as little unready as possible.

It is expected that the French will compete in the event this year.—G. D.

SCHNEIDER RACERS.

The following letter from a reader who has been intimately concerned with aviation since 1911 is of interest :—

Sir,—Many hard things have been said and written about the Air Ministry for not spending more of the taxpayer's money on building aircraft to compete in International Races and to put up new records with the object of helping British Aircraft Constructors to obtain orders from foreign Governments.

From what one hears of the Aircraft Industry to-day it appears that there are several Constructors who are making very handsome profits out of their Air Ministry Contracts, and I suggest that if the winning of International Races, etc., is going to help them to obtain more orders, they might devote a portion of these profits to building the necessary Racing Machines and not expect the already overburdened taxpayer to do their advertising for them.

(Signed) It Pays to Advertise.

THE REPORT OF IMPERIAL AIRWAYS LTD.

Dated Dec. 21, 1925, the directors' report and balance sheet of Imperial Airways Ltd. for the year ending Mar. 31, 1925, has just been published. It is not difficult to imagine reasons why the board of the firm should have desired to present their report in as favourable a form as possible, but there certainly does not appear to be anything contained in the actual report which need have occupied nine months in concocting.

The net result of the year's working reveals a loss of £15,217 odd, after crediting the subsidies (£139,409)—in other words a trading loss of £154,627 is the real result of the year's operations. The report—quite legitimately—draws attention to the difficulties which attended the opening of the firm's operations, and the loss of revenue which resulted therefrom, but it is probably fair to say that had there been no pilot's strike or other cause of trouble, the trading loss would just about have equalled the subsidy.

The profit and loss account has been so framed as to reveal nothing as to the company's earnings. The financial result of their operations appears in the account only in the form of an item, "Balance from trading account after crediting subsidies and charging all working expenses." This item shows the respectable credit balance of £33,764, but against this there appears on the other side of the account, Insurance, Depreciation of Premises, Plant and Vehicles, and Reserve for obsolescence of Aircraft and Engines, and "special" Advertising expenditure.

Deducting these charges, the net loss on the aerial activities of the firm, without providing for Directors' fees, is roughly £13,300. If the reserve for obsolescence is neglected, there is a trading profit, including subsidy, of approximately £9,000 or, excluding subsidies, a gross loss of £130,000.

There is no sort of indication to be found as to the earned revenue or the actual working expenses of the firm. Reasons have already been given in this paper for believing that the earned revenue of Imperial Airways during this year's working was but a fraction of the subsidy received.

On the other hand if—as is pretty certainly the case—Imperial Airways is practically living on public funds, the public is entitled to some more detailed statement as to the manner in which their money has been expended than can be found in this report.—W. H. S.

THE ROYAL AERONAUTICAL SOCIETY.

Conversazione.—Sir Samuel Hoare, Secretary of State for Air, has kindly consented to attend the Society's Conversazione on Tuesday, Jan. 12, which is being held to celebrate the Society's sixtieth birthday. H.I.H. Prince Chichibu will also be present. Members and their friends will have an opportunity of inspecting the wonderful collection of exhibits in the Aeronautical Section of the Science Museum, which are the most numerous and representative of any collection in the world. The String Band of the Royal Air Force will play during the evening and refreshments will be provided.

Lecture.—The first lecture of the second half of the Sixty-First Session will be held on Jan. 7 at 6.30 p.m. in the Library at 7, Albemarle Street, W.1, when Professor A. J. Sutton Pippard, D.Sc., F.R.Ae.S., will read a paper on "The Experimental Stress Analysis of Frameworks with Special Reference to the Problems of Airship Design."

AWFUL RESULTS OF CHRISTMAS.

A fellow once pulled out his Martinsyde—
Proceeded to pack a dog-cartinsyde,
"Dear me," said the groom,
"There isn't much room,
We must leave it with part out and partinsyde!"

Said a fellow who bought a nice Sopwith-Gnu
"I've got an old 'Tinsyde' to stop-with-you."
To the "Tinsyde" he said,
Though you ought to be dead,
I will let the new Sopwith-Gnu hop-with-you!"

A pupil once said that the Bison
Was the rottenest 'bus he'd set eyes on;
His instructors said, "Oh!
We all like it, you know,
No doubt you will too when you fly son!"

I've heard there's a Pilot who thynx
That you can't beat a good Avro-Lynx.
He says that on stalling
There's no fear of falling—
She just very gingerly synx

A Pilot we'll call "Mr. A."
Was flying a 504 K,
He dived and he swooped,
He spun and he looped,
In a truly remarkable Wa.

A Squadron possessed an old Fawn
Which was pulled out at dawn every mawn,
The Flight-Serjeant said,
As he crawled out of bed,
"I shan't mawn when the wawn Fawn is gawn!"

Said the Fox of the speedy young Flycatcher
"I'll bet you a shilling that I catch her."
The Fawn said "I'm willing
To lend you that shilling
'Cause once up aloft your're a sky scratcher."

When some Scouts had a race with the Fox,
The 2-seater 'bus gave 'em sox,
The Air Staff below
All remarked, "Here's a go!
We must order him quickly—in flox!"

The one satisfaction we've got
In the S.4 'plane going to pot
And the cold-blooded fact
That it's twice we've been whacked—
Is, that Doolittle's now "done a lot."

C. B. B.

PERSONAL NOTICES.

Death.

WOODBYRNE.—On Dec. 23, at Nefisha, Egypt, as the result of a flying accident, Cecil William Woodbyrne, Plt. Off., R.A.F.

Mr. Woodbyrne entered the R.A.F. in January, 1925, with a short service commission. He was undergoing a course of instruction at No. 4 F.T.S., Abu Sueir, at the time of the accident.

Marriage.

CORYTON—HANBURY.—On Dec. 19, at All Saints' Church, Minstead, Sq. Ldr. William Alec Coryton, M.V.O., D.F.C., son of the late Mr. William Coryton, D.L., Pentillie Castle, Cornwall, to Philippa Dorothea, daughter of Mr. and Mrs. Daniel Hanbury, Castle Malwood, Lyndhurst, Hants.

Births.

BLACKBURN.—On Nov. 4, at 11, Davies Avenue, Roundhay, Leeds, to Mr. and Mrs. Charles Blackburn—a son.

COLE.—On Christmas Day, at "Thornycroft," 214, Kew Road, Richmond, to Linda, wife of Flt. Lt. Seaward N. Cole, R.A.F.—a son.

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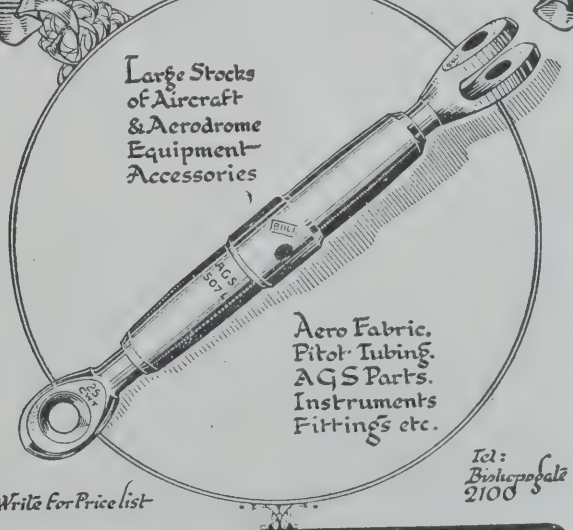


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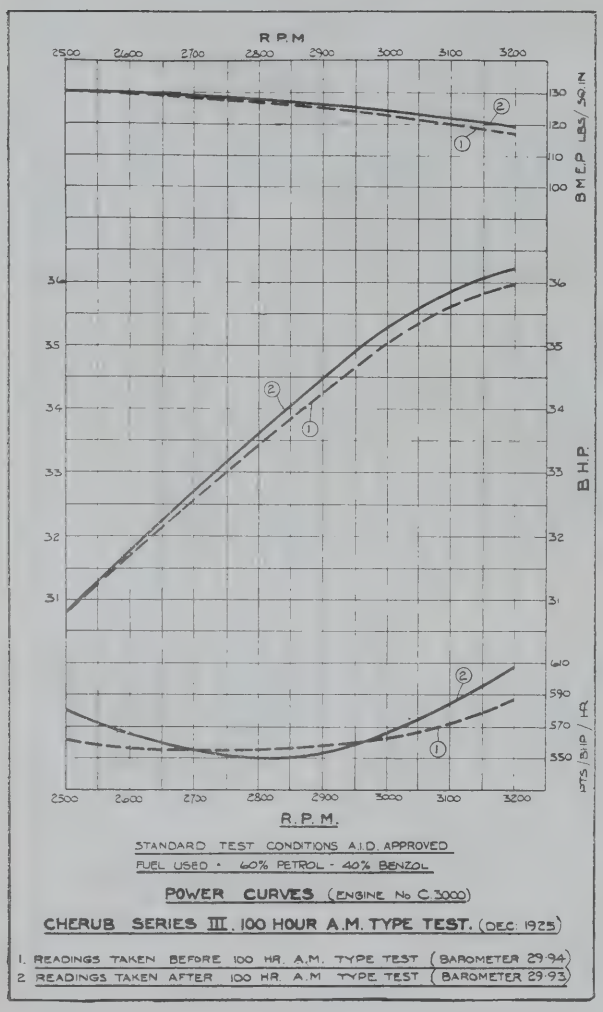

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